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CASES ILLUSTRATING THE FAULTY TREATMENT OF SUPERFICIAL MALIGNANCY

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Within the past few years there has been much written concerning the prevention of cancer, its early diagnosis and its proper treatment. It is interesting to see just what fruits this propaganda is bearing. Unquestionably many more persons with premalignant conditions are consulting the surgeon and dermatologist than in former years; but that the situation is yet far from perfect will be revealed by a consideration of the following cases.

During the past three years I have been consulted by thirty-two private patients for malignant conditions of either the skin or mucous membranes of the mouth. Of this number only six consulted me for early, untreated stages of cancer. One of these had a cancer of the under surface of the tongue, while the remainder were suffering from cancer of the face.

The faults in handling the other cases naturally group themselves under three headings: first, neglect on the part of the patient; second, faulty diagnosis on the part of the physician; and, third, improper or insufficient treatment by either physicians or quacks.

Fig. 1. — A prickle cell cancer of the cheek which was mistaken for a gumma.

In nine instances, patients had neglected themselves without seeking medical advice. One intelligent man had suffered from a cancer of the scalp for nineteen months, four patients had superficial growths of either the face or neck for over two years, one man had carcinoma of the lip for eight months, two had cancers of the face for six years, and one woman had five neoplasms of the face for seven years before seeking aid.

In this series there were six cases that had been wrongly diagnosed by the attending physicians:

One case of a basal cell growth developing in the nasolabial fold of a man, aged 40, was called lupus vulgaris and treated on the "expectant plan" for some years.

In another instance the development of a fungous cuboidal cell neoplasm in a chronic varicose ulcer was unrecognized for three months.

The third case occurred in my own practice. A man, aged 56, was referred to me by an excellent surgeon with a diagnosis of gumma of the cheek. The patient denied any venereal infection, and the Wassermann test was negative. However, he had pigmented scars over the upper third of both shins, and the tibiae were thickened and roughened. On the other cheek was a depressed scar, which he stated resulted from an ulcer that remained unhealed for six months. The lesion for which he was referred was horseshoe shaped; at one end it was cleanly punched out for a considerable depth, and at the other end the skin overhung the base, which was composed of a fairly clean granulation tissue which was not friable. There was no history of bleeding. The edges were considerably indurated, but there were no cancer nodules or plugs, and there was a zone of inflammatory redness for over half an inch beyond them. In view of the other findings I considered that the condition was syphilitic, so at once administered a full dose of salvarsan, with the result that the ulcer at once stopped discharging, and apparently began to fill in from the base. At the end of two weeks another injection of salvarsan was administered, but this time no improvement took place, and it was very shortly evident that the lesion was spreading. Ten days after the last injection a hard, pearly nodule appeared at the border of the ulcer, and this was excised with the electric cautery, and stained. It disclosed typical prickle cell epithelioma.

In the fourth case a man presented himself with an indurated, raised lesion about the size of a quarter on the edge of his tongue next a sharp tooth. The diagnosis of cancer was made and a radical operation advised, but the patient was not satisfied and went to another city, where he was put on injections of mercury. When he returned to Washington three months later the whole floor of the mouth and most of the submaxillary glands were involved.

The fifth case was one of retrotonsillar lymphosarcoma which was seen by a throat man and diagnosed as cold abscess despite a mass of adherent glands in the submaxillary region. This was lanced many times before the correct diagnosis was made.

The last instance was one of typical carcinoma of the tonsil, which was first treated for quinsy. Later the patient received several injections of salvarsan, and at the same time received one "massive dose" of Roentgen rays on the supposition that it might be malignant. Just what was the excuse for combining both methods of treatment would be rather interesting to know.

Twelve cases were either improperly or insufficiently treated after a correct diagnosis was made. In several instances more than one faulty method of treatment was employed.

Four cases had been treated by caustics:

One man with an early basal cell neoplasm of the nasolabial fold was treated by caustic potash, with the result that the lesion was spread.

A second small superficial lesion was treated with carbon dioxid snow, and within two weeks the growth was greater than it had been in the last six months. In passing I might remark that I have seen only four cases of epithelioma which were treated by this method, and that all of the patients were made much worse, although in each instance the remedy was employed by a well trained dermatologist.

Another small lesion in the nasolabial fold was twice treated by caustics, the first time by a regular practitioner and the second time by a cancer quack, and each time the resultant spread was rapid.

Fig. 2.—Effect of two years' treatment with small divided doses of the Roentgen rays.

Fig. 3.—Malignant melanoma which arose on a nevus which had been partially excised.

In the fourth instance an early growth at the inner canthus of the eye was cauterized with silver nitrate, with practically no results, either beneficial or otherwise.

Five patients had operations performed from which rapid recurrences took place:

In one instance a small growth was knowingly incompletely excised, the surgeon stating that he preferred to let the Roentgen rays take care of the remainder. Growth was rapid.

In another instance a neoplasm at the outer canthus of the eye was incompletely excised. As operation in this region is rather difficult because of the danger of deformity of the lid, it should be attempted only by a man skilled in such plastic work.

In the third case a fully developed cancer of the lower lip was treated by a small wedge shaped incision, with the result that in six months there was both local and glandular recurrence.

In the fourth case an attempt was made to excise the edge of a rapidly growing pigmented nevus, and a typical malignant melanoma promptly resulted.

In the last case a carcinoma of the tongue was treated by an excellent surgeon with a beautiful excision of the glands on both sides of the neck, but with a simple burning out of the primary lesion with the actual cautery in an attempt to save the tongue. Within six months the whole of the tongue and floor of the mouth were infiltrated in the cancerous process, while only one or two glands appeared in the neck. A patient without a tongue is a pitiable object, but a person with an extensive cancer of that organ is many times worse off!

One small basal cell lesion of the cheek had been treated by fulguration, with a recurrence in nine months, the recurrence being both deep and wide.

Four of the patients had been treated by small divided doses of the Roentgen rays. The new method of single heavy dose therapy has been in use such a short time that we have not as yet had a chance to study recurrences after it, although some will doubtless occur.

A patient with cancer of the nasolabial fold and adjoining parts of the cheek was not only not improved, but was made so radiosensitive that he could not stand even one unit of a hard filtered ray.

A basal cell cancer of the cheek was treated by one of the best roentgenologists in the country, and although a marked dermatitis resulted yet there was no shrinking of the growth.

The third case, one of basal cell epithelioma of the inner canthus of the eye, was temporarily healed by small divided doses of the Roentgen rays, but there was a worse recurrence in three months.

Another small growth of the nasofacial fold was treated by repeated small doses over a period of two years, and the condition much aggravated.

Special interest attaches to a series of four cases which were treated by the much vaunted radium, all of the patients being made much worse:

In the first instance a physician with a growth, basal cell in character, in the nasolabial fold had much treatment with Roentgen rays, and with various caustics. Several extensive operations, both with the curet and acid nitrate of mercury, and with the actual cautery, were performed, but there were persistent small recurrences, both in the cheeks, and in what remained of the nasal cavities. He was referred to one of the leading radium exponents who had large quantities of this material at his disposal. After several heavy treatments, the patient seemed improved, but after more applications the condition became much worse, and spread rapidly. The last three treatments caused marked general depression, and after the last he was confined to his bed, and eventually died from exhaustion.

In another instance a patient with a lesion about an inch in diameter in the left nasolabial fold consulted the same man, after caustics had been unavailingly applied. After several applications, none of which produced the slightest reaction, the whole of the upper lip and a large portion of the cheek became involved in the cancerous process. In other words, an operable lesion was made inoperable. It is rather interesting to note that the same patient had three other plainly evident cancerous lesions, one on each side of his neck, and one on his temple. Two of these were never treated in any way while he was under observation, which

Fig. 4.—An operable basal cell cancer which was made inoperable by the injudicious use of radium.

Fig. 5.—In this instance a cancer of the floor of the mouth was greatly benefited by radium. Poor judgment was shown in attempting to control the glands with the same substance.

was probably just as well considering the results obtained. In this case one would guess that the amount of radium used was too small, and simply acted as a stimulant.

Still another patient with an extensive carcinoma of the floor of the mouth had been referred to the same physician, and radium had been applied to the trouble within the mouth with marked benefit, all of the lesion being at least healed over. The glands of the neck, however, were treated by the external application of radium with the most disastrous results, for they were simply stimulated, and speedily ruptured through the skin, as well as invading the deep planes of the neck. Here again a possible operable case was made inoperable.

The last case was that of an out of town physician who had a superficial basal cell cancer of the left cheek which had been treated with carbon dioxid snow, partially excised, and then radiated, all without benefit. Several treatments with radium at the hands of another exponent resulted in the temporary disappearance of the lesion, but each time it speedily reappeared. After the last course a nodule, not more than 7 millimeters in diameter, became at least 5 centimeters in diameter within two or three weeks.

In view of the very bad way in which at least three of these cases were handled, one must naturally wonder whether some of the so-called radium experts are not on the same plane with those advertising various nostrums, both local and internal, for the cure of the dread malady, cancer. If there is any difference it rests in the fact that they are more dangerous. One must also receive with some skepticism the report of cures of deep malignancies and of uterine fibroids.

CONCLUSIONS

1. The public is not yet sufficiently educated as to the importance of attending to superficial sores that will not heal.

2. While it must be admitted that some cases of superficial malignancy are difficult to diagnose, still entirely too many of them are mistaken for other affections, even by experienced physicians. All suspicious growths should be positively diagnosed at once.

3. Many cases are not treated radically enough; it should always be remembered that insufficient treatment of whatever kind is the worst possible thing for a patiert suffering from a malignant condition.

4. Radium, even in large doses, and when administered by some of its greatest advocates, is by no means infallible in the superficial cases that it is stated to cure.

Fig. 1.—Record of the stomach contractions in Case 1. Patient pressed down key every time he noted an abdominal discomfort. As can be seen from the record, the abdominal discomfort coincided with the contractions of the empty stomach.

The Extinguishing of Small Gasoline Fires.—As a result of a series of tests, the British Fire Preventive Committee has found that a mixture of sawdust and sodium bicarbonate, in the proportion of twelve of the former to ten of the latter, has advantages over sand and similar materials as an extinguishing medium for small gasoline fires. The sawdust should be free from shavings or chips of wood, but does not require to be either dried or damped. The mixture is best kept in bins holding eight bushels. In regard to the application of the mixture, the committee recommend that, in order to be thoroughly effective, it must be applied rapidly and in large quantities but systematically, so as to produce a curtain effect. —*Lancet*, London.

CONTRIBUTIONS TO THE MOVEMENTS OF THE EMPTY STOMACH

XXXIV. A NOTE ON THE MOVEMENTS OF THE EMPTY STOMACH IN CERTAIN PATHOLOGIC STATES *

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Up to the present, with the exception of five papers,[1] none of the contributions of this series has dealt with the activity of the empty stomach under any but normal physiologic conditions. It is perfectly plain, however, that the simple methods used in working out the essential features of the mechanism of hunger can be used equally as well in studying gastric motility under diverse pathologic conditions, especially when the general symptoms of the malady, disorder or disease refer directly or indirectly to pathologic states present in or involving the stomach. We refer chiefly to such disorders and diseases as gastric or duodenal ulcer, carcinoma of the stomach with or without pyloric obstruction, and acute gastritis. In short, the activity of the empty stomach might be profitably studied in conditions involving polyphagia on the one hand and anorexia on the other, as well as in those conditions which deal with pain referable for the most part to the epigastric region. Such a study made by a person having ready access to the wealth of material found in the larger hospitals would not only be of value in corroborating or modifying the interpretation of experimental work obtained from dogs, but also might lead to results that would direct therapeutic measures in the proper direction in the disease under observation. There is no question that the method employed would aid in the diagnosis and differential diagnosis of various gastric disorders.

The present communication has a triple object:

1. To point out to those interested in the clinical side of medicine the simplicity of the method, the small cost of the apparatus requisite for obtaining reliable and accurate results, and the value of the results obtained to the physiologist and to the clinician. A

* From the Physiological Laboratory of the University of Chicago, and Michael Reese and Cook County Hospitals.

* Read before The Chicago Society of Internal Medicine, March 27, 1916.

1. These five papers are:
Luckhardt, A. B.: The Cause of the Polyphagia of Pancreatic Diabetes, Am. Jour. Physiol., 1914, xxxiii, 313.
Carlson, A. J.: The Tonus and Hunger Contraction of the Empty Stomach During Parathyroid Tetany, Am. Jour. Physiol., 1913, xxxii, 398.
Carlson, A. J.: A Study of the Mechanism of the Hunger Contraction of the Empty Stomach by Experiments on Dogs, Am. Jour. Physiol., 1913, xxxii, 369.
Carlson, A. J., and Ginsburg, H.: The Tonus and Contractions of the Empty Stomach in Infants with Congenital Pyloric Stenosis and Pylorospasm, Am. Jour. Physiol., 1916, xxxix, 310.
Elsesser, O. J.: The Effect of Experimental Stenosis of the Pylorus on the Tonus and Contractions of the Empty Stomach, Am. Jour. Physiol., 1915, xxxix, 303.

limited experience has shown that the method is feasible for bedside work. Aside from the kymograph, most of the apparatus is found in every hospital, and what is not there can be easily made, or bought for a few dollars. Patience is a requisite of importance if anything of value is to result. Sacrifice of some time is a prime essential.

2. To put on record the result of an experiment on man beautifully corroborating the results obtained from dogs by one of us[2] during an investigation as to

Fig. 2.—Record of the stomach contractions in Case 2. The various dots on the tracing indicated by an arrow represent occasions when the patient experienced abdominal discomfort the same in type as when he was hungry. As can be seen from the tracing, the contractions are moderately powerful, resembling in type those obtained by Elsesser in dogs following experimental pyloric stenosis.

the cause of polyphagia of diabetes mellitus and pancreatic diabetes.

3. To record the results obtained from the human stomach under several other pathologic conditions—results which check with our conceptions as to the nature and cause of hunger.

We earnestly invite the reader to examine the simplicity of the method described in detail elsewhere,[3] and we pass, therefore, directly to the results obtained by us in three patients under the care of one of us (W. W. H.):

REPORTS OF CASES

CASE 1.—M. O., man, admitted to Michael Reese Hospital, Jan. 29, 1914, complained of a slight loss of weight since the onset of his illness three or four years ago, which consisted of "pain in upper abdominal region" during the day (from 8 to 9 a. m.) and night. He characterized the pain as a dull ache which did not come on till late after meals. Aspiration seven hours after a motor meal was negative. The average results of two Ewald test breakfasts were: quantity, 190 c.c.; free acid, 37; total acid, 59. Weber test on gastric contents and feces was negative. A diagnosis of simple hyperchlorhydria, possibly neurotic in origin, was made, although chronic gastric ulcer was also considered.

Contractions of the empty stomach taken on several successive days were not more vigorous, nor were the periods more frequent than those taken from any normal person after the same period of abstention from food. As Figure 1 indicates, he felt distinctly each contraction as the pain which caused him to apply to the hospital for treatment. The fact remains that after the first day of observation (which, of course, as usual the patient considered a part of the gastric treatment) his vague sensations of discomfort gradually disappeared, and he left the hospital on the fourth day expressing himself grateful for what had been done for him. The patient was, therefore, judged a neurasthenic who had so focused his attention on his gastro-intestinal tract that he picked out and interpreted the sensations arising from the normal hunger contractions as the symptoms of a pathologic condition. His hunger contractions were normal, and his prompt "cure" was as significant to us as it was pleasing to him. Possibly an increased excitability of the central nervous system was responsible for sensations of abdominal *pain* (hunger pangs) which the normal person would *at the most* note as a vague sensation in the epigastric region and which by habit he alleviated by taking food. Especially so is this likely, since introspection and unconscious exaggeration of symptoms is a favorite occupation of the neurasthenic. If, then, the condition is chiefly psychic, our "treatment" might exert a favorable influence on such a patient and lead to the "cure" as described in this paper.

CASE 2.—T. K., an aged negro in Cook County Hospital afflicted with a carcinoma of the stomach without as yet grave signs of a pyloric obstruction,[4] had a tumor mass in the abdomen to the right of the median line the size of an orange, together with a gland in the supraclavicular region the size of an English walnut. Two Ewald breakfasts consisting of toast and 6 ounces of tea were analyzed with the following results:

First meal: aspirated at end of one and a half hours; quantity, 310 c.c.; free acid, 18; total acid, 41.

Second meal: aspirated at end of hour; quantity, 120; free acid, 10; total acid, 36.

The patient was emaciated, but took a lively interest in food, complaining on several occasions that the restricted hospital diet (soft diet) did not meet his hunger or appetite requirements. The contractions of his empty stomach taken about eighteen hours after his last meal were fairly powerful, as can be seen from Figure 2. Since such or similar contractions in the normal result in the sensation of hunger, it is important to add that he felt during the contractions an abdominal discomfort the same as when he experienced hunger. Feb. 23, 1914, his empty stomach showed no signs of activity during about three hours' continuous observation (Fig. 3). This deviation from the normal, however, was soon explained by an attendant who informed us that on the previous evening friends had smuggled into the hospital a bottle of wine which he drank and some cake which he munched under cover of his blankets. An acute gastritis developed soon after this indiscretion, and he spent the early part of the evening retching and vomiting. No doubt the acute gastritis was responsible for the absence of the usual

Fig. 3.—Record of the stomach contractions in Case 2 during an attack of acute gastritis. Slight tonus variations are in evidence. During the greater part of the period of observation the records show a simple respiratory rhythm.

hunger contractions and the presence of a perfectly atonic stomach. Parenthetically we might note that an acute gastritis induced in a dog by giving him whisky and alcohol through a gastrostomy opening led to an atonic stomach and a cessation of the normal hunger contractions for a period of forty-eight hours. But the complete results of this and similar experiments will be reported more fully at some future date. Experimental work on the action of certain drugs in allaying or increasing hunger contractions has been begun, but not advanced enough for even a preliminary report.

2. Luckhardt, A. B. (Footnote 1).

3. Carlson, A. J.: A Study of the Mechanism of the Hunger Contractions of the Empty Stomach by Experiments on Dogs, Am. Jour. Physiol., 1913, xxxii, 369; The Hunger Contractions of the Empty Stomach During Prolonged Starvation (Man, Dog), Am. Jour. Physiol., 1914, xxxiii, 95.

4. Subsequent necropsy (March 7, 1914) confirmed the clinical diagnosis.

CASE 3.—The most interesting results were obtained from C. A., man, aged 29, admitted to Cook County Hospital, Dec. 18, 1913, and assigned to the care of one of us (W. W. H.). Two weeks previously he had been at Mercy Hospital (Chicago) for excessive thirst, general weakness, and frequent urination. He had been sick seven weeks, and during that time had lost 20 pounds. He was hungry all the time and had been eating large amounts of food since leaving Mercy Hospital. He was in the last stages of a severe diabetes mellitus. In spite of a restricted carbohydrate and large doses of sodium bicarbonate, he was growing progressively weaker. His ketonuria was marked; and his dextrose to nitrogen ratio was 1:35.

Feb. 11, 1914 (first trial), the empty stomach possessed good tone and showed moderate hunger contractions. Five days later (Feb. 16, 1914) the empty stomach showed two moderate and one powerful period of hunger contractions in less than three hours. This is rather unusual; for after a twelve hours' fast, hunger periods recur about every two hours. During one of the three periods mentioned above, all but a few cubic centimeters of the chloroform was expelled from the manometer, so that the graphic record is not complete. The fact is significant that the patient became restless and irritable toward the end of the experiment, and continually asked for food. Because of this increasing restlessness and irritability, the experiment was discontinued for obvious reasons.

The patient went into diabetic coma five days later, and died the following evening (Feb. 22, 1914).

Fig. 4.—Record of the stomach contractions in Case 3. As can be seen, the period ends in tetany at the close of which (*b*) a powerful contraction forced a considerable amount of chloroform out of the manometer.

It is regretted that other duties prevented us from recording observations between February 16 and February 21. Our experiments surely indicate that the contractions of the empty stomach are responsible for the sensations of hunger experienced by diabetics. We do not expect to find that other patients so near death from other causes (save in special easily explainable instances) would speak of eating as often and as freely and exhibit hunger contractions of the same severe type as shown by this patient.

Incomplete as the results are, they nevertheless confirm the work on animals suffering from a fatal pancreatic diabetes when the polyphagia was attributed to the marked hunger contractions resulting from the inanition which is so prominent a feature of the disease.[1] For it was shown[5] that the blood of an animal showing the polyphagia of pancreatic diabetes similar to the blood of a starved animal possessed the property of increasing the vigor of stomach contractions when such blood was injected intravenously into a normal animal.

SUMMARY

The method employed in studying the movements of the normal empty stomach (hunger contractions) is feasible for use in the study of movements of the stomach in pathologic states which point either directly or indirectly to an involvement of the stomach. Patients experienced no difficulty in swallowing the balloon; the apparatus necessary is simple and inexpensive; the results obtained are of great interest and value both to the clinician and physiologist.

The results obtained so far warrant the following statements:

1. The hunger contractions obtained from a neurasthenic conformed to the normal, though interpreted by him as painful. They were neither more vigorous nor more frequently repeated than those of any normal person. His prompt "cure" justified our conclusion that we were dealing with a patient not suffering from any serious organic gastric disorder.

2. Hunger contractions were obtained in a case of cancer of the stomach without marked pyloric obstruction. The contractions were moderately powerful. The patient was quite emaciated (in a state of inanition), but took interest in food and experienced hunger during the contractions.

3. When, however, an acute gastritis is brought on by dietary indiscretions, there results a cessation of contractions of the empty stomach, and this is accompanied subjectively by a lack of interest in food and an absence of hunger (anorexia).

4. Most cachectic states are accompanied by an anorexia. Further work will no doubt show that this is due to the absence of well defined hunger contractions. The cachexia of diabetes mellitus, however, is accompanied by a more or less well marked polyphagia. We find that the latter results from frequent and vigorous contractions of the empty stomach (hunger contractions) which are responsible for the polyphagia exhibited by patients suffering with this disease.

5. Luckhardt, A. B., and Carlson, A. J.: On the Chemical Control of the Gastric Hunger Mechanism, Am. Jour. Physiol., 1914, xxxvi, 37.

CHYLOUS ASCITES AND CHYLOTHORAX

DUE TO CARCINOMA OF THE STOMACH

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Chylous ascites — the occurrence of ascitic fluid which is of a milky character, and the color of which is due to the presence of chyle or of fat globules (pseudochylous) — is a sufficiently rare condition to make a case of extreme interest, both clinically and physiologically. Several cases in which the condition resulted from a traumatic rupture of the receptaculum chyli have been studied by physiologists, who, assuming that they were dealing with pure chyle, have been interested in watching the effect of various diets on the composition of the chyle.

In 1910 Wallis and Scholberg[1] reported three cases and reviewed the literature, collecting reports of 173 cases; but they missed the cases reported by Hall and Morton,[2] Nichols,[3] Batty Shaw[4] and Edwards.[5]

1. Wallis and Scholberg: Quart. Jour. Med., iii, 301; iv, 153.
2. Hall and Morton: Northwestern Univ. Bull., June, 1910.
3. Nichols: Med. News, New York, Nov. 11, 1905.
4. Shaw, H. B.: Jour. Path. and Bacteriol., 1900, vi, 339.
5. Edwards: Practice of Medicine, 1909.

Since their article, cases have been reported by Gandin,[6] Calwell,[7] Marrack,[8] Lediard,[9] Collins,[10] and Huber and Silver.[11]

The article by Wallis and Scholberg is quite exhaustive, giving an abstract of all the 173 cases of chylous and chyliform ascites and the sixty cases of chylothorax, with complete analyses of the fluid obtained in their own cases and an extended discussion of the conditions.

In the cases abstracted by Wallis and Scholberg, there are seventeen in which the etiology is given as carcinoma of the stomach. Of these, in three — the cases of Zawadski (1891), of Lydhecker (1893) and of Menetier and Gauchler (1902) — there also was chylous fluid in the thorax. To these three we add here a fourth:

REPORT OF CASE

History.—W. T. B., man, aged 46, horse buyer, Anglo-Saxon, referred by Dr. Riley of Benedict, Kan., had a father, mother and one brother living and well. No brothers or sisters were dead. He possibly had a syphilitic infection fifteen or twenty years before. Some antisyphilitic treatment was carried on for a year, but not vigorously. He used to

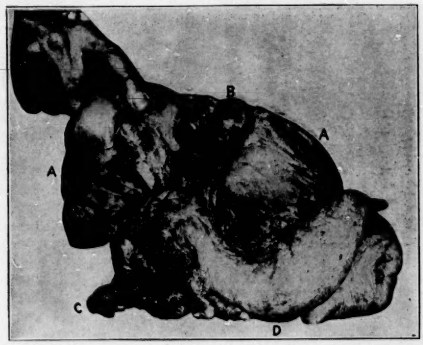

Fig. 1.—Gross specimen: *A, A,* liver; *B,* gallbladder; *C,* mesentery of the intestine filled with glands; *D,* stomach, with tumor in the pyloric region.

use whisky too much, but took a cure about five years before, and had not used it since. He had never been in tropical countries, other than Texas, where he has been within two years.

He felt well up to six months before examination (April 16, 1915). The onset of his illness was sudden. One day in the afternoon he felt dizzy and vomited. He did not go to bed, but was weak and dizzy and continued to feel much the same way for two months. He vomited three or four times in that period. He has never vomited blood. In the last three months he has been troubled with indigestion, pain after meals, belching and bloating. The bowels are constipated.

March 27, 1915, the abdomen began to swell very suddenly, and in a few days was enormously distended. It was tapped, April 1, and about a gallon of milky fluid was removed.

April 8, it was again tapped, and 1½ gallons of ascitic fluid of the same character were removed.

6. Gandin: Ergebn. d. inn. Med. u. Kinderh., 1913, xii, 219.
7. Calwell: Brit. Med. Jour., Feb. 21, 1914.
8. Marrack: Quart. Jour. Med., 1912, vi, 462.
9. Lediard: Clin. Jour., 1914, xliii, No. 9.
10. Collins: Ann. Surg., 1913, lviii, No. 4.
11. Huber, Francis, and Silver, H. M.: A Case of Acute Chylous Ascites (Non-Fatty, Pseudochylous, Latescent or Milky Type) in a Boy Eight Years Old, Am. Jour. Dis. Child., July, 1914, p. 50.

An edema of the scrotum and penis was observed at about the time of the appearance of the ascites.

April 16, he was removed to the Swedish Hospital from his home in Benedict, Kan.

Physical Examination.—At this time the temperature was 99; pulse, 110; blood pressure, 135. Urine: specific gravity, 1.020; acid; a trace of albumin; no sugar; no casts. Blood: hemoglobin, 105; reds, 4,000,000; whites, 17,000. Differential count of whites showed normal relationship. The Wassermann reaction was negative.

Fig. 2.—Duodenum, showing lacteal vessels engorged and lumpy in appearance over its surface.

The patient looked old for his age. His hair was white. The veins on the cheeks were dilated. Heart: The apex was just outside the nipple line. There were no murmurs. A diffuse and soft swelling was on the left side of the neck just below the clavicle. The lungs were clear with normal vesicular murmur everywhere except in back of left chest, where there was dulness with no breath sounds and evidence of fluid. There was edema of the scrotum and penis, and enlargement of the glands in both inguinal regions. The skin was slightly edematous everywhere, not more so in the legs than over the chest and in the skin of the abdomen. The abdomen was enlarged, with evidences of fluid. No filiariae were found in the blood.

Course.—April 17, the abdomen was tapped, and over a gallon of milky fluid withdrawn. The chest was aspirated at the same time, three and a half quarts being removed. This chest fluid was clear straw colored. The fluid removed from the abdomen was milky in appearance, with a tinge of pink. It contained 1.9 per cent. of albumin and fat, and did not react to Fehling's solution. Microscopically it showed small fat globules, and small specks in constant atomic motion. Leukocytes and erythrocytes were numerous.

Fig. 3.—Small intestine, near end of jejunum; lymphatic vessels are stained with silver nitrate; note thickness of mesentery.

April 23, the abdomen and the chest were again tapped. Chylous fluid was found this time in the chest as well as the abdomen. A swelling in the left side of the neck the size of a small orange was observed. It receded in size when fluid from the abdomen was removed. After the fluid had been removed, a tumor extending across the upper abdomen, above the umbilicus and more marked on the left side, could be outlined on palpation. It was recorded that it felt like a tumor of the transverse colon. The liver was two fingers below the costal arch.

May 1, the abdomen and the chest were tapped. A large quantity of milky fluid was obtained from each.

May 12, the abdomen was tapped; 1½ gallons of chylous fluid were removed.

May 13, the patient died.

Necropsy.—A partial postmortem examination was made, May 13, at 8:30 p. m. The body was that of a middle-aged

Fig. 4.—Section of tumor in the stomach.

man. There was no rigor mortis. There was edema of the penis and scrotum. There was a swelling on the left side of the neck. When the abdomen was opened, about 3 quarts of milky fluid escaped. The intestines were distended and covered with a lymphatic exudate. The cecum and appendix were enormously distended. Small lymphatic channels over the surface of the intestine were greatly distended. All the glands of the mesentery were enlarged. The entire mesentery was a thick mass of glands which were soft in consistency.

The liver was enlarged and edematous. The gallbladder was large. There were no gallstones.

A tumor was present along the lesser curvature of the stomach, extending from the duodenum to well within the pylorus. The glands of the gastrohepatic mesentery were enlarged. No growth was found in the rectum.

Milky fluid was found in the left side of the chest. The lungs everywhere were clear and crepitant. There was no enlargement in the mediastinum. There was no aneurysm. The thoracic duct could not be located. The entrance of the thoracic duct into the large veins could not be made out.

The entire small intestine, stomach, liver and mesentery, with the covering of the abdominal aorta, were removed in one piece.

COMMENT

The case was interesting. The shifting of symptoms from day to day was alone sufficient to make it such, and besides, the diagnosis was always in doubt, ranging from filiariasis to thoracic aneurysm. The case of Nichols,[3] of which we had a report, and in which the ascites was due to cirrhosis of the liver, influenced us to cling to that diagnosis most constantly in view of our patient's alcoholic history. After he had been a week in the hospital the tumor, felt in the upper abdomen, made the diagnosis of carcinosis of the abdomen seem very reasonable.

Of especial interest was the swelling on the left side of the neck just above the clavicle. Was this due to an enlarged or tense thoracic duct? It was noticed that it receded in size after tappings of the abdomen or chest. It extended gradually up the neck, day by day, between tappings, until it reached half way up to the sternomastoid muscle.

Was there an obstruction of the receptaculum chyli, either a thrombus or a metastatic plug? We are unable to state. The specimen removed from the body was taken with an especial view to a dissection of the great lymphatic duct, but while it was attempted no part of it was found. The demonstration of the receptaculum chyli or of the thoracic duct is one of extreme difficulty, and rarely satisfies any one but the dissector himself. After attempting it in this case we are regretfully inclined to take with a grain of salt the very glib reports of its condition made by other reporters of cases of chylous ascites.

As we did not find the receptaculum in the abdomen or the thoracic duct in the thorax, we feel inclined to believe that they were not affected in this case, as a metastasis of the tumor would have been seen in either of them. We believe that the chyle escaped into the abdomen through the small lymph vessels of the intestine and mesentery. We know, in support of this belief, that they were all very much dilated, that the lymph nodes all through the mesentery were enlarged, and that metastases were found in the small lymph vessels of the intestine and in the nodes from every portion of the mesentery (Figs. 2, 3, 4 and 5).

The fluid removed from the abdomen and the chest gave the evidence of being true chyle; it did not putrefy on standing, it did not clot, and it contained no macroscopic particles of fat. A great deal is made of the differences between chylous and pseudochylous and chyliform fluids by other authors. Huber and Silver make the following distinctions:

Fig. 5.—Section of mesenteric gland, showing metastasis.

1. True chylous effusion is due to the presence of chyle.

2. Chyliform or fatty, though resembling the first, owes its milky appearance to emulsified fat, the result of a fatty degeneration of cellular elements.

3. In the third variety "the opalescence is not due to the presence of fatty emulsion but is caused by the

presence of opalescent substances, the exact nature of which is still undetermined."

Wallis and Scholberg have a much simpler conception of the different nature of the fluids. "Chylous effusions would include, as before, those due to trauma or to the escape of chyle in diseases affecting the lacteal and lymphatic systems." Chyliform are all other kinds.

CASES IN THE LITERATURE

The article by Wallis and Scholberg, as we have stated above, is the most complete monograph in English on the subject. We have not attempted to confirm their references. The cases which we have found in the literature not included in their article, or reported since, are as follows:

Hall and Morton[2] report a case due to trauma; a wagon passed over the abdomen of a young boy. Many tappings were made, and true chyle obtained. The case was studied chemically by Hall in relation to diets.

Nichols[3] reports a case in a man, aged 74, due to cirrhosis of the liver.

Two tappings were made, and 5,700 and 6,200 c.c. of fluid, respectively, obtained. The man died, and there was a necropsy.

Calwell[7] reports a case due to nephritis (?). The patient was tapped once, and 3 pints were drawn off.

Marrack[8] reports two cases, one due to appendicitis and one to nephritis.

Lediard[9] reports four cases, one due to tubercular peritonitis, one to Hodgkin's disease, one to heart and liver disease, and one to a malignant cyst from the pelvis.

Collins[10] reports a case due to trauma.

Huber and Silver[11] report a case in a child, aged 8, due to no determinable cause. An operation was performed and an opportunity given to examine the intestines, when the lacteal vessels were seen engorged, as in our case. A subcutaneous drainage of the peritoneum resulted in a cure. They quote Gandin, a reference to which we do not have access.

Fig. 6.—Section of intestinal wall, showing metastatic plugs in the lymph channels.

Lead Poisoning in Pottery Trades.—The causes of lead poisoning in the pottery trades are the lead ingredients, of which the glazes are partly composed. The most dangerous process is that of mixing the glaze, applying it to the ware and then removing the excess of the glaze from the ware, handling the ware while the glaze is still wet, decorating and painting the ware and also sweeping the rooms in which the glaze has been handled. Much of the glaze is without lead and is harmless; but in a large percentage of the various pottery wares, lead glazes are used. In only a few of the factories investigated by Dr. Hamilton did the percentage of lead exceed 20. In certain tile works, the percentage in the glaze ranges from 40 to 60. The workmen, besides being exposed to lead poisoning, also inhale much mineral dust and suffer from the effect of great heat in the firing of the enamels.—C. M. Price, *Modern Factory.*

DEVELOPMENT OF THE STATE HOSPITAL AT KANKAKEE (1880-1890) *

RICHARD DEWEY, A.M., M.D.,
WAUWATOSA, WIS.

In the latter half of the nineteenth century, many problems connected with the public care of the insane presented themselves for solution which developed conflicting views. Some of these questions were: the advisability of separate provision for the acute and chronic classes; the extent to which mechanical restraint was necessary or admissible; the need of establishing laboratories for psychopathologic research, of instituting training schools for attendants, of broadening and diversifying industries among the inmates and of increasing their privileges, and even of maintaining in some instances "open" instead of locked doors. Among all the questions, however, that which for a time took precedence of others concerned the introduction of a new type and style of building — the substitution of modern "segregated" or "detached" buildings, domestic in style, for the antiquated "congregate" structures previously in universal use. This paper is intended, among other things, to describe the new departure in architecture which was ushered in at Kankakee between 1880 and 1890.

Today, when this transformation has long been *un fait accompli,* it seems sufficiently simple; but in its inception it involved much controversy and debate which was at times tinged with acrimony.

After the close of the Civil War, a great mass of insane pauperism seemed to become suddenly a public burden. This incubus had been growing all along, but the people did not become aware of it until after the war and its all-absorbing issues had been disposed of. Then the necessity for asylums became apparent, and every state in the Union, in its turn, found itself engaged in a struggle with this unwelcome and ever increasing burden. In the several states one asylum after another was provided, but in nearly every instance, long before the doors were open, more than enough hapless defectives had accumulated in the almshouses and jails of the state to fill it to its utmost capacity. A grim struggle with this increasing mass of human driftwood has been constantly in progress up to the present time. The struggle seems absurdly unequal; for the forces of the state continually lag behind, balking at the enormous expenditures involved. The situation may be likened to a "forlorn hope" assailing an inaccessible height. It

* This article is a revision of the writer's history of Kankakee, one of the forthcoming series of histories of "The Institutional Care of the Insane in the United States and Canada," to be published this year by the American Medico-Psychological Association, under the editorship of Dr. Henry M. Hurd. Volume I has already appeared from the Johns Hopkins Press.

might be compared to the cutting of the Gaillard channel through the Culebra Mountain on the Isthmus of Panama: each time when a new opening has been cleared, another inert mass slowly accumulates, obstructing the path of progress. Vast treasure has gone into this great engineering enterprise, but the millions which have been poured into it are insignificant compared with the sums[1] which have been and will be expended in the conflict which civilization wages with the masses of defectives — its useless by-products, useless except as a test of the humanity

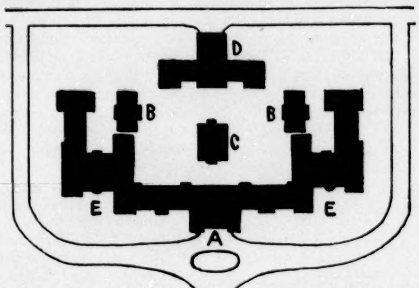

Fig. 1.—Type of congregate institution, Kalamazoo, Mich., 1857; scale, 100 feet equal 1 inch: *A*, administration; *B*, *B*, infirmary; *C*, chapel; *D*, service buildings; *E*, *E*, wards.

and efficiency of our civilization. We cannot doubt the ultimate victory of soundness and reason over disease and disorder, though at times conscious of anxiety and even alarm over the issue.

The institutions for the insane constructed in the United States prior to 1880 were always practically of one type, a massive, many-storied building with dominant central structure and wings extending far to right and left in sections and cross-sections wherein were gathered the hundreds of these incapables who fell to the grudging care of the state. This "central building with wings" was accepted as a sole and universal model up to the last quarter of the nineteenth century. Whenever and wherever a new insane hospital was wanted, it seemed to be a matter of course that an abject copy would be made of some one or another of the state hospitals already existing. This type of building, the congregate hospital, apparently first modeled after a medieval monastery, and later, though improved from time to time in many details, still in arrangement and design retaining an institutional rather than a houselike or homelike character, remained the example to be followed under all circumstances. It reached its highest development in the so-called "Kirkbride" plan, named after the late eminent Dr. Thomas Kirkbride of the Pennsylvania Hospital. This uniformity of building seemed to imply uniformity in condition of the inmates, and evidently they "all looked alike" to the legislative eye. All were considered dangerous, their principal need being confinement in a strong, secure building. It was long before the idea entered the minds of the statesmen, who controlled the appropriations, that the insane were possessed of many human attributes; that the dangerous ones were the rare exceptions, and that dangerous or vicious conditions were often due to the evil environment provided by the state itself.

Figures 1 and 2 show the two types of buildings. As provision for the insane was more and more demanded, the efficiency and appropriateness of the congregate style of building came more and more into question. The questioners were not the people identified with institutions, but, as is so often the case, outsiders were the critics. One criticism of the prevailing style of building was its cost. It required a minimum of a thousand dollars, and in some institutions three or four thousand dollars had been expended for every patient accommodated — enough to provide a house and lot for an ordinary citizen. Other criticisms began to be heard. It was claimed that a "sad idleness" instead of employment and diversion which would be both practicable and beneficial prevailed, and also that an unnecessary amount of mechanical restraint and confinement was used. Visitors to institutions in other countries brought back reports of large industries, "open doors," abolishment of mechanical restraint and a more homelike atmosphere; especially was the colony for the insane at Gheel, Belgium, brought up as an example, in which an insane population of over 2,000 was mostly quartered in the homes of the peasantry. All these discussions led to advocacy on the part of the public of "cottages" rather than "caravansaries" for the insane. At the same time, those identified with the institutions maintained a strict adherence to traditional lines. The advocacy of the so-called "cottage system" was "unorthodox," "impracticable," "theoretical." Discussion went on for years, and while changes were advocated from the outside, all was complacency within. The ancient monastic structure was well intrenched, and the assaults of the reformers made little impression.

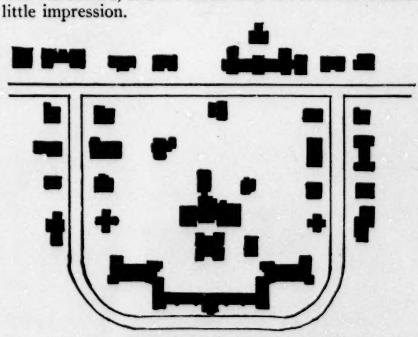

Fig. 2.—Type of segregate institution, Kankakee State Hospital, 1880-1890; scale, 500 feet equal 1 inch; village plan; first departure from congregate type. The small building in the congregate style was retained in avoidance of too radical a change.

In the meantime, the demands for additional institutions had to be met, and various expedients were discussed. The policy of separate and cheaper establishments for incurable cases was frequently proposed, and although this policy was ultimately discredited, yet in a notable instance it was adopted. The Willard Asylum for Chronic Insane was established at Ovid, N. Y. This institution developed rapidly, reaching in the end a capacity of more than 2,000 inmates. It was at first constructed in the well known congregate style, but a

1. For the support of 187,454 insane patients in public institutions of the United States, the sum of $32,804,450 was expended in 1910, and each successive year shows an increase in the number of patients and in the expenditures involved (the latest available census figures).

step in advance was secured in diminishing the cost of construction. Under the admirable management of Dr. John B. Chapin, these buildings were constructed at an expense per capita of about $500 — less than half the amount that had previously been considered necessary.

Turning now to the inception of the hospital at Kankakee, we note that the Board of State Commissioners of Public Charities of Illinois, and especially Mr. Wines, its secretary, had studied the question of buildings for the insane. This board had pondered over these problems from its first assumption of office in 1869. Its members were aware of the criticisms which were rife in the community, and they had invited, by correspondence and conference, expressions from many men of expertness and experience in this field. In that first year (1869) a meeting for discussion of this subject occurred at Chicago, at which Dr. Andrew McFarland, then superintendent of the state hospital at Jacksonville, Ill., said:

> The present system of architectural construction adapts the entire institution to the demands of its smallest and worst class, while for the great majority all these appliances are utterly unnecessary. We need more of the element of home life. I would not abolish the old form of institution. The two systems may exist side by side. I would have the central hospital in the foreground. At a little distance I would have a group, not of cottages; they should be houses of two stories in height. Under this system facility of extension would be great. Classification would be more complete.

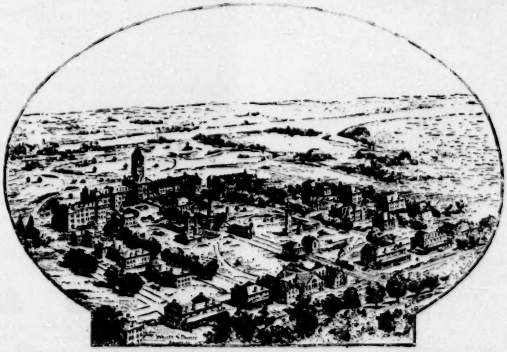

Fig. 3.—Bird's eye view of Illinois Eastern Hospital for the Insane, Kankakee, as it appeared in 1887, with a capacity of 1,600 patients. The material of all buildings is either stone or brick, and the main building is fireproof throughout. The total cost of the institution, which was begun in 1878, to 1887, for every expenditure except running expense, amounted to an average for each patient of $754.50. The average cost per patient on construction account alone (excluding cost of furniture, land, etc.) was $590.18, cost of cottages under $500.

At a later date, in the report of the state board[2] for 1892, referring to the foregoing paragraph, Mr. Wines, in stating the case for detached construction, said:

> To Dr. McFarland, therefore, more than to any other man, belongs the credit of planting the germ which has developed into the hospital at Kankakee. His words passed unnoticed at the time, but they made a deep impression upon the state board, and especially upon its secretary, Mr. Wines, in whose brain they ultimately took practical shape.

The opinion arrived at by Mr. Wines as a principle for development of future institutions was thus expressed:

> The classification demanded (for the insane as a whole) was not in separate wards of one building nor in separate institutions (for acute and chronic), but in separate or detached buildings for the care of both acute and chronic cases in a single institution, under a single head.

In noting the further steps in the genesis of detached construction, the fact is to be emphasized that when the appropriation was made for the new institution at Kankakee in 1877, the law was so worded as to make it *obligatory* for the trustees of the new institution to secure the approval of the board of charities to any plan they might adopt. This practically made Mr. Wines, the secretary of the board of commissioners of public charities, arbiter of the building plans, and here, for fuller elucidation, a few words must be given to Mr. Wines, as he was a determining factor in the change of type in buildings for the insane.

Frederick Howard Wines, formerly a Presbyterian clergyman at the state capital, and previously, during the Civil War, a chaplain in a Missouri regiment on the Union side, had become secretary of the state board of commissioners of public charities at the request of Governor John M. Palmer. It was a case of the "office seeking the man." Mr. Wines was a brilliant writer and speaker, a man of broad sympathies and humanitarian motives. He was also possessed of a grasp of economic principles and administrative details unusual for a clergyman. Having familiarized himself with the subject of further provision for the insane, he had become an advocate of greater freedom and elasticity in constructive and administrative matters. In 1878 he had been delegated to attend the world's prison congress at Stockholm. Thus, while in Europe he had been able to study institutions and had become convinced of the practicability of the detached wards. He submitted to the legislature on his return a report which resulted in the first appropriation for detached buildings at Kankakee, and the sum of $30,000 was appropriated for "cottages" to accommodate there 100 patients in three separate buildings. Thus legislative approval was given for the first time to the detached ward idea.

There was even yet a certain measure of apprehension in the mind of Mr. Wines, as is shown by the following language in his report for 1882:

> The foundation of this experiment was laid in fear and trembling. The "cottage-system" had been a topic of discussion for many years, but the . . . sentiment of . . . the medical profession engaged in the care of the insane was adverse to it.

The tradition of the congregate style of building had been so strong that in 1877 the board of trustees of the Kankakee Hospital in a joint conference with the board of public charities had decided that the first building erected must be the stereotyped central building with wings. The board was unwilling to take the chance of so radical a departure from long usage as would be involved in total detachment. Thus the leading strings of custom prevented progress at first; but the successive additions, in 1881, of three buildings for 100

2. Page 112.

patients, in 1883 of ten buildings for 1,000 patients, and in 1885 and 1887 of further extensions were all in the detached style, so that in 1893, more than 1,600 patients were domesticated under the village or cottage plan of construction,[3] and the successful working of these wards through all the subsequent years vindicated the claims that their originators had made for them.

NONPARTISAN CONTROL

It is worthy of note here that the unusual conditions as to party control prevailing in the legislature at the time the institution was organized led to the appointment by the governor of a "nonpartisan" board of trustees, with two Republicans and one Democrat on this board of three members. In the light of subsequent events, this feature may be regarded as fortunate, since partly in consequence of the minority representation and partly by reason of the disposition of all three members of the board to ignore partisan politics and to hold the superintendent alone responsible, civil service principles were consistently maintained during the fourteen years' service of the first superintendent.[4] This fact had an important bearing on the development of the institution, as it enabled the administration to be free from all political interference.

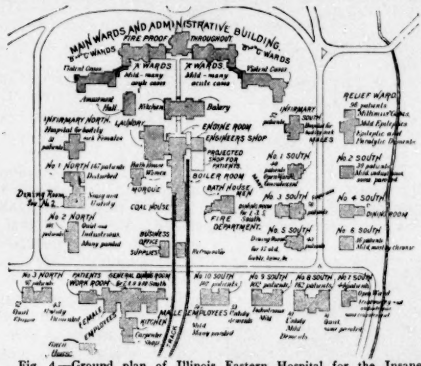

Fig. 4.—Ground plan of Illinois Eastern Hospital for the Insane, Kankakee.

REDUCTION IN COST

The cost of detached wards at Kankakee did not exceed $500 per capita. Up to the time when these buildings were erected, the congregate buildings universally in use had cost a minimum of $1,000 per capita. A reduction in cost of about 50 per cent. was thus effected, so that the amount formerly necessary for one patient would now provide for two. This was better than "two blades of grass where one grew before."

INCREASE OF INDUSTRY

The percentage of patients employed rose from 42 per cent. in the first biennial period to 57 per cent. in 1888, 68 per cent. in 1890, and 73 per cent. in the last period of my superintendency (1892). Space will not admit of details concerning the great variety of trades and handicrafts which were introduced.[5]

TRAINING SCHOOL FOR ATTENDANTS

In 1886 a training school for attendants was organized. At that time there were but four schools in existence in institutions for the insane in the United States. Up to March 31, 1893, 130 attendants had graduated, sixty-four men and sixty-six women. Sixty were still in the employ of the hospital. Eleven men and six women graduates were also employed in other capacities, having been promoted for merit.[6]

DR. ADOLF MEYER

An interesting fact in the history of Kankakee is the service there of Dr. Adolf Meyer as pathologist from 1893 to 1895. Dr. Meyer began at Kankakee a distinguished career, culminating in the professorship of psychiatry at the Johns Hopkins Medical School and the directorship of the Henry Phipps Psychiatric Clinic. He secured during 1893 the purchase from the German government exhibit at Chicago of valuable apparatus. He inaugurated staff meetings and a course of instruction for the medical staff, also greatly improved the case-taking system.

Fig. 5.—Interior of men's workshop.

3. As showing the somewhat far-reaching influence of the new departure at Kankakee, the following facts may be noted: The governors of Ohio and Indiana, accompanied by a state commission and an architect or engineer, each visited and inspected the detached wards at Kankakee in 1883. Later the institutions at Toledo (capacity 1,000), at Logansport (capacity 380) and at Richmond (capacity 400), all on the detached ward plan, were constructed. North Dakota employed Major Willett, architect at Kankakee, and in 1885 had 160 patients in three detached wards. New York constructed a new hospital at Ogdensburg built in detached blocks in 1890, capacity when complete 1,500 patients. Ontario at Mimico near Toronto in 1890 had 240 patients in detached wards. New York City in 1889 had 360 patients in detached wards at Central Islip. Any one interested in the views on building plans held at that period can find documents and discussions in the files of the American Journal of Insanity, and in the "Propositions and Resolutions" collected and published in 1876 by the Association of Superintendents; also the reports of the Board of Public Charities of New York, Massachusetts, Pennsylvania and Illinois (the only state boards of charities in existence up to 1869). The report for 1884 of the Illinois Board of Public Charities, Chapter III, p. 65, has a very full summary of the subject from the pen of Secretary Wines.

4. Having been the first superintendent, the writer well remembers one of his first official acts—the securing of a carpenter. After thorough inquiry, the man found by all odds best qualified was selected, but when later the appointment became known to the local "boss" of the political "machine," a period of consternation ensued, and the superintendent discovered that he had appointed a Democrat instead of a Republican carpenter. In local political circles this was felt to be a serious blunder. There was no interference with the appointment, however, and that same good craftsman remained in full exercise of his functions until fourteen years later, when a new governor (Altgeld) decapitated all the boards of trustees, in order to secure at each institution a superintendent who would do his bidding.

5. In addition to all the usual domestic and farm and garden employments, the following industries were regularly in use (see biennial report for 1890, p. 20): broom making, chair caning, upholstering, scroll sawing, rug and mat making, rag carpet weaving, tailoring, shoe and slipper making and repairing, harness making, tin smithing, wall painting and decorating, the making of paper flowers, basket making, knitting (all socks and stockings used), printing, engraving and picture-framing.

6. The training school fell into disuse for many years owing to political changes, but has been reestablished in all the institutions in late years.

LESSENING RESTRAINT AND INCREASING PRIVILEGES

Mechanical restraint (the use of straight jacket, muffs, etc.) in that day, as always considered an evil, was apt to be treated as a necessary evil and more or less a matter of course. The policy adopted at Kankakee resulted in making it a rare exception. No apparatus was kept in the ward. If used it was applied only by the physician personally after an investigation as to its need. This alone made restraint a rarity. A report and record were made and kept on file of all cases of restraint or seclusion that occurred.

To introduce more homelike atmosphere and soften the rigor of confinement and restraint was an especial object kept in view. The following notes, taken from the "Illinois Institution Quarterlies" of 1914 indicate the progress made, and show that it has been continued in late years:

"At this time there are 1,000 paroled patients. There are twelve "open" cottages, whose doors are never locked and whose windows are not barred or screened. Women attendants on male wards have been increased in number; ten wards have been put in charge of female nurses. Every screened door has been taken off. No patient's door has been locked at night. In two months there has been no seclusion and only one case of "mechanical restraint" among an average of over 2,000 patients."

These conditions were attained under the superintendency of Dr. Sidney Wilgus.

As the hospital at Kankakee was avowedly a departure from methods previously prevailing in architectural construction, and was administered with the purpose of putting to the test certain progressive ideas, the foregoing facts and statements are given.

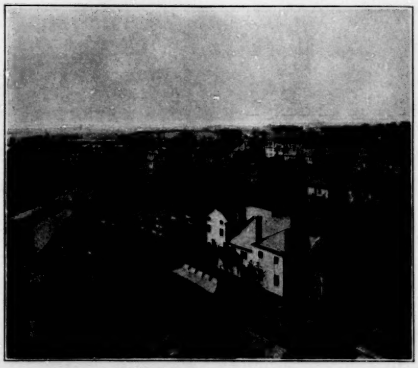

Fig. 6.—View looking northwest.

CONCLUSION

In closing we may ask the following question: Was the more domestic style of construction, the so-called "cottage" or "detached ward," successful, and did it win general approval?

This question is answered by results immediate and remote so well known as to require only the briefest statement. The more simple, segregated and less expensive style of architecture employed in the detached buildings at Kankakee as a substitute for the many storied congregate central building with wings (previously considered necessary) was given immediate recognition in many states, as shown above, and is accepted today as a matter of course.

It may be said that *freedom* in construction rather than any stereotyped form of building resulted from the experience at Kankakee. The change in constructive ideas would have come in any event, but was helped quite decisively by the experience obtained at Kankakee. The fact was established that efficient care is the first essential, and is more important than any particular type of building.

The reader is now, I hope, in a position to form his own opinion concerning the institution at Kankakee.

In closing my account, as the person through whom the institution's plans and progress were carried out in its formative years, I desire to pay a tribute of honor to the memory of Frederick Howard Wines. His ability and force of character were the originating and sustaining power in inception of "segregated" construction at Kankakee, as opposed to the "congregate" style previously prevailing. His ideas, ably and eloquently presented, were the source of much that was new and valuable in the evolution of greater freedom, adaptability, intelligence and efficiency in constructing and organizing institutions for the insane in the United States.

THE ETIOLOGY OF IRITIS*

ERNEST E. IRONS, M.D.
AND
E. V. L. BROWN, M.D.
CHICAGO

This study was undertaken primarily to determine the causes of "rheumatic" iritis; but in the absence of any clear distinguishing features of this form apart from etiology, we have included all cases of non-traumatic iritis,[1] and after examining each patient as completely as possible, have grouped them in accordance with the causes discovered in each.

This report does not assume to be a complete survey of the causes of iritis, but is rather a recital of the infections which we found and of the evidence for and against the etiologic relation of each to the iritis. The final conclusion as to the relative importance of each cause must be left to future studies.

One hundred patients (forty-seven private and fifty-three clinical) have been thus studied.[2] Careful attention was given to the history, and a complete physical examination was made to detect the presence of syphilis, tuberculosis, gonococcal infection, and infections of teeth, tonsils, sinuses, prostate, pelvis or

* From the Memorial Institute for Infectious Diseases, and the Presbyterian and Cook County Hospitals.
* Read at the Fifty-Second Annual Meeting of the American Ophthalmological Society, Washington, D. C., May 9, 1916.

1. The eye condition encountered has been for the most part "plastic" iritis. Certain cases showed a more marked involvement of the ciliary body or anterior choroidea, and the diagnosis was accordingly modified to "serous" cyclitis or to iridochoroiditis. All cases were studied during an active stage of iritis. No cases of sympathetic iritis or iritis following wounds, operations or ulcers have been included. We have not encountered any cases of fulminating suppurative panophthalmitis during the period of this study.

2. We are indebted to Drs. Wescott, Pusey, Wilder, Darling, Beard and Blue for the privilege of using the notes of cases referred to one of us (E. E. I.) for study. We are also indebted to a number of our colleagues, whose cooperation in painstaking and laborious clinical and laboratory examinations has added much to the completeness and accuracy of our study. Among others, we acknowledge the valuable assistance of Drs. Ormsby, Harris, McEwen and Stillians in the diagnosis of certain cases of syphilis; Drs. Shambaugh, Friedberg, Boot, Beck and Sonnenschein in examinations of the nose, throat and sinuses; Drs. Gilmer, Moorehead, Potts, Puterbaugh and McGuire for advice in and treatment of dental conditions; Drs. Potter and Blaine for many roentgenographic studies of teeth and sinuses, and Drs. Nicoll, Bissell and Moody for extensive serologic studies.

other structures which might give rise to lesions in joints or eyes. Laboratory examinations included Wassermann tests (ninety-eight patients) controlled by two laboratories, complement-fixation tests for gonococcal infection, roentgenograms of teeth and sinuses, and of the lungs when there was any question of pulmonary disease, and cultures of pus from tonsils, sinuses, prostate and other infected tissues. Tuberculin tests, 1, 3, 5 and 10 mg. being used, were made in suitable cases.

After a complete survey of the patient, appropriate measures were taken to remove all infections so far as possible. From the course of the iritis following these procedures, we obtained valuable evidence confirmatory of the etiologic diagnosis. In patients in whom we found but one source of infection, removal of which was followed by immediate improvement of a previously intractable iritis, no special difficulty was experienced in drawing reasonably safe conclusions as to the relation of cause and effect.

We found two or more infections associated in a surprisingly large number of patients. In many of these the reason of the association was obvious; thus, infections of tonsils, sinuses and teeth, or syphilis and gonococcal infection were often found together. In other instances, there was no apparent direct relation between two infections, such as syphilitic iritis from secondary syphilis, associated with a latent alveolar abscess.

THE CAUSES OF IRITIS IN ONE HUNDRED CASES

Infections	Alone	With Other Infections	Total	Coincident Infections						
				Syphilis	Gonorrhea	Tuberculosis	Dental	Tonsil	Sinus	Genito-Urinary
Syphilis	10	13	23	..	8	5	5	1	1	..
Gonococcal infection	7	2	9	..	..	..	1	1	..	..
Tuberculosis	8	..	8	..	..	..	..	..	..	..
Dental infection	7	11	18	2	2	2	..	7	1	..
Tonsillar infection	7	9	16	1	3	2	7	..	..	..
Sinus infection	1	2	3	..	..	..	1	1	..	..
Genito-urinary (nonvenereal)	3	..	3	..	..	..	..	..	..	..
Other infections	2	..	2	..	..	..	1	..	..	..
No cause found	1	..	1	..	..	..	..	..	..	..
Combined infections	..	..	17	8	9	7	8	13	5	1
			100							

By a careful weighing of all the evidence, we were able to determine in most cases which infection was probably responsible for the disease of the eye; but sometimes the available evidence was insufficient, and we have placed such cases in a "combined" group. Some of these patients suffered from several infections. Syphilis, active tuberculosis, gonococcal infection and alveolar abscess were repeatedly found in the same individual.

The accompanying table summarizes (1) the number of times each infection was found in direct etiologic relation with the iritis, and (2) the coincident infections found.

SYPHILIS

The relation of syphilis to iritis affords one of the most interesting studies in this series.

The history of infection, and the evidence of past and present infection, were carefully investigated in each case. In ninety-eight cases, Wassermann tests, usually controlled by two laboratories, and in doubtful cases repeated two and three times, were made. In the two cases in which this test was not made, there was no history or clinical evidence of syphilis, and the iritis in both was definitely ascertained to be due to other causes.

In thirty-nine cases, syphilitic infection had occurred either recently or years before. Of these cases, twenty-eight were dispensary and eleven private patients. In twenty of the thirty-nine cases, the iritis was clearly syphilitic; of this twenty, thirteen showed other clinical evidence of active syphilis. Of the seven in which other active syphilis was not apparent, the Wassermann reaction was positive in all. The iritis was recurrent and had been previously observed in association with acute syphilis in four, a condyloma of the iris was observed in another; in two the diagnosis would have remained in doubt without the Wassermann test. All seven recovered promptly on antisyphilitic treatment. Three other cases of the thirty-nine probably were due to syphilis, judging from the prompt relief following antisyphilitic treatment, although other possible causes, such as active gonococcal or tonsillar infection, were also present.

The remaining sixteen cases of the thirty-nine are of interest because they illustrate the obvious fact that a person infected with syphilis may also suffer from bacterial infections, which may be the real cause of secondary metastatic lesions. We shall refer later to the influence of one infection in the body on other subsequent infections.

Of the sixteen cases in which the iritis was not syphilitic, the grounds on which syphilis was excluded as the cause varied. In none were there signs of active syphilis. In five the time of infection was remote, seven, twenty-two, twenty-five, twenty-seven and forty-five years previous, and the Wassermann reaction negative. In all, there were other causes present, following the removal or appropriate treatment of which, where this could be done, the iritis subsided without antisyphilitic treatment. In several of these, the iritis had previously resisted antisyphilitic treatment in other hands. Among the causes of the iritis in these cases were tonsillar, sinus and gonococcal infection with arthritis. In three the iritis subsided at once after the drainage of alveolar abscesses. In one case due to alveolar abscesses, the iritis appeared contemporaneously with extensive arthritis, while the patient was receiving mercury for syphilis of twenty years' standing. Removal of the abscesses resulted in prompt cure of arthritis and iritis.

The distribution of syphilitic iritis between the dispensary group and the private group of cases is of interest. Of forty-seven private cases, syphilis was present in eleven, and was the cause of the iritis in six, while of fifty-three cases in the clinic, syphilis was present in twenty-eight, and was the cause of the iritis in seventeen. The patients in the clinic at Cook County Hospital were in part referred to us as outpatients, and in part came from the wards of the county hospital, including the venereal ward. The inclusion of several cases of syphilitic iritis from the venereal ward raises the proportion somewhat above what might be encountered in a hospital which does not receive patients with active syphilis. We have been able to discover no other reasons for assuming that the figures given do not fairly represent the proportion of syphilitic iritis in a metropolitan clinic, so far as conclusions may be drawn from a limited number of cases.

In unselected groups of cases syphilis is encountered more frequently in the wards of a charity hospital than in private practice, and in the latter also the disease is more likely to be efficiently treated, and the complications of untreated syphilis are therefore less frequent.

Out of 100 successive cases of iritis, there were only twenty-three in which syphilis was the cause of iritis, and sixteen others due to other causes in which syphilitic infection had occurred, making a total of thirty-nine patients in whom syphilis had to be seriously considered in the etiologic diagnosis. This leaves sixty-one cases in which a searching examination failed to reveal any evidence of past or present syphilitic infection, and in which, therefore, the iritis could not be reasonably thought to be due to syphilis.

So far as one may draw conclusions from this number of cases, it would seem that the widely accepted statement that 50 per cent. or more of iritis is due to syphilis may have to be revised. Certainly in the absence of other evidence of active syphilis in a patient with iritis, the assumption that the iritis is syphilitic is more likely to be wrong than right.

DENTAL INFECTION

Infections about the teeth occur in a large proportion of all persons, and care must be exercised in ascribing to such infections a causal rôle when they happen to be found in the subjects of iritis, or other metastatic lesions.

In this study we have not included peridental infections as possible causes unless they were closed processes, that is, apical infections (alveolar abscesses), demonstrated by roentgenograms and confirmed by the oral surgeon on extraction.

In certain cases of extensive pyorrhea, lateral abscesses occur, or the tissues may be deeply invaded with resulting metastatic lesions; but in the present series, such cases have not been encountered. In several cases, alveolar abscess was the only discoverable infectious process in the body, and the removal of the abscess was followed by prompt and permanent relief of the iritis.

Alveolar abscesses, or apical infections demonstrated by roentgenograms and confirmed by the oral surgeon, were found in forty-one patients (twenty-four clinical and seventeen private). In eighteen patients (ten private and eight clinical), we regarded the dental lesion as the source of the iritis. The evidence on which this conclusion was based varied in the several cases, but included such facts as the absence of other sources of infection and the prompt clearing of the eye on removal of the cause, or the association of the initial attack or recurrences of iritis with known dental infection; or, if other infectious processes were also present, the failure of treatment to relieve the iritis until the abscesses were discovered and removed.

In ten clinical and five private patients the iritis seemed to be clearly due to other causes, such as syphilis and tonsillar infection, and the dental infection relatively inactive so far as concerned the causation of metastatic lesions. Latent alveolar abscesses are often found in persons not suffering from iritis or other evident metastatic disease.

In the remaining nine patients (seven clinical and two private) the dental infection was associated with other infections, often two or more, including tonsillar, sinus, syphilitic or gonococcal, and we were unable to satisfy ourselves which infection was responsible for the disease of the eye. So far as possible, we tried to arrange the sequence of surgical and other treatment so that we could observe the effect of each procedure on the eye; but in a number of instances, considerations of expediency and the saving of vision made it necessary to proceed rapidly to the elimination of all possible causes of the iritis.

Cases of this type, in which the difficulty in assigning a cause for the iritis arose not from inability to find an infectious process but in deciding between several adequate causes, we have preferred to group under the heading of "combined infections," rather than to guess as to which of the infections was the exciting cause of the iritis. This group will be discussed later.

TONSILLAR INFECTION

Tonsillar infections appear to be as important an etiologic factor in iritis as in arthritis and other metastatic lesions. Under tonsillar infections, we have included deep infections of the tonsils, and intratonsillar and retrotonsillar abscesses, but have not included slight lesions such as small crypts containing "cheesy" material, unless accompanied by deeper infection. Superficial infections are not to be disregarded in the routine examination, however, for they often furnish a clue which leads to further investigation and the discovery of deeper hidden infection.

In some cases the history of previous tonsillar infections, the appearance of the tonsils, the enlargement of regional lymph nodes, and the associated arthritis and myositis point directly to the tonsils as the source of the iritis; but in other cases, careful and repeated search is required to discover the deep tonsillar abscess, the removal of which results in relief of the iritis.

The tonsil was clearly the source of infection in sixteen cases (twelve private and four clinical). In thirteen cases of the combined group, tonsillar infection was present with other infections; but, as in the case of dental infections, we were not able to determine whether tonsillar or dental infection was the immediate source of the iritis. It is of some interest to note that twelve of these thirteen combined cases were in the dispensary group, and if all the facts could be determined, it is probable that a number of these would fall in the tonsillar group, thus raising the proportion of tonsillar cases in the dispensary group from four clearly defined cases to a number more nearly corresponding to that in the private group (twelve cases), in which multiple infections were less numerous, and consequently an etiologic diagnosis more easily made.

In cases clearly due to other causes, tonsillar infection was found in several; in the syphilitic group, two; gonococcal, one; sinus, one, and dental seven. Tonsillar and dental infections are frequently found together, and the question may well be raised as to whether the dental infection may not have developed in previous months and years by the same mechanism as the iritis, by repeated infections from the tonsils. Cultures from tonsillar abscesses after tonsillectomy often showed hemolytic streptococci.

GONOCOCCAL INFECTION

Gonococcal infection was believed to be the cause of the iritis in nine patients, all male. In eight of these an active or recent, usually multiple, arthritis was present. In seven the iritis was recurrent and often associated with recurrent arthritis following exacerbations of urethritis. In one case the iritis occurred during an acute gonorrhea without arthritis. In

another a recurrence of the iritis was noted during a period of fever, with arthritis, and the gonococcus was isolated from the blood. A positive gonococcal complement fixation test was obtained in six of seven cases in which it was made. Three of these patients came to one of us for advice as to arthritis, so that it is possible that the proportion of gonococcal iritis is slightly larger than would be the case in a second hundred cases in which this element of selection was not operative.

In seven of the nine patients, infections other than gonococcal were not found; in the other two, both recurrent, tonsillar or dental infections were found, but the recurrences were closely associated with exacerbations of urethritis and arthritis. It is, of course, conceivable that a urethritis with general infection and arthritis might so depress the resistance of a patient to other infections that a latent infection in the tonsil might give rise to an iritis; but such an assumption seemed hardly justified in the two cases under discussion. All evidence in each case must be considered, however, for the mere finding of a positive complement fixation test in the subject of gonorrhea does not indicate a gonococcal origin of the iritis any more than a positive general tuberculin test alone indicates that an iritis is tuberculous.

In cases due to other causes, gonococcal infection was present in thirteen: eight of the syphilitic group, two of the dental, and three of the tonsillar, all dispensary patients.

In the combined or undetermined group, evidence of active gonococcal infection was found in nine, of whom eight gave a positive complement fixation test. All nine patients were in the dispensary group. One or more attacks of multiple arthritis with recurrences of urethritis had occurred in several of these patients. In one patient who had contracted syphilis twenty-two years previously, the initial attack of iritis occurred four years later coincidently with arthritis and directly following urethritis. During the year preceding the present attack, the iritis had recurred coincidently with the appearance of tertiary syphilitic lesions of the leg and mouth. At the time of examination the syphilis had healed under treatment, but the iritis was still active, the Wassermann was negative, and gonococcus complement fixation positive. The mouth was extremely foul with extensive caries and gingivitis (apparently not mercurial), but no alveolar abscesses were found. A positive tuberculin reaction followed the injection of 1 mg. O. T., and later an acute attack of tonsillitis occurred. Here it seems reasonable to assume that the initial iritis may have been gonococcal, but the possibility of the active participation of one of the other coincident infections cannot be excluded.

Such cases as the foregoing illustrate the difficulty of evaluating the several possible causes of iritis in patients, especially of the dispensary group, in whom multiple infections are frequently found.

TUBERCULOSIS

In eight patients (three clinical and five private) the iritis appeared to be tuberculous. In seven the evidence seemed clear, and in one presumptive. In two of the seven, active clinical tuberculosis was present; and in five positive tuberculin reactions, together with other evidence of tuberculosis, such as changes in the lungs, were demonstrated by physical examination and roentgenoscopy. In two cases focal reactions in the eye repeatedly occurred following tuberculin tests; in interpreting these reactions, care was taken to avoid confusing them with the sudden exacerbations of inflammation which may occur spontaneously in iritis. In none of the seven was there any other discoverable focus of infection.

Evidence of the presence of tuberculosis, usually latent, was found also in five patients in whom the iritis was due to syphilis; in two each of the dental and tonsillar groups, and seven of the combined group, the latter all dispensary patients.

SINUS INFECTION

In three patients the iritis was considered due to infection from the sinuses. In several others, the sinuses were infected together with other structures such as tonsils and teeth, but it was not possible to determine whether one or another of the lesions was the immediate source of the iritis, and these cases were accordingly placed in the combined group. For practical purposes the importance to the patient lies in the recognition of the presence of infection, whether it is in one or more places, and its eradication.

Abnormalities in the several sinuses were discovered on routine clinical examination or by roentgenoscopy in nineteen cases, in ten of which active infection was demonstrated. In spite of able assistance, and the recent advances in roentgenographic and clinical diagnosis of sinus disease, we have experienced more difficulty in determining the presence or absence of infection in the sinuses than in any other region of the body.

OTHER INFECTIONS

In three cases, the iritis was associated with nonvenereal infections of the genito-urinary tract, including two of the prostate.

In one instance no adequate cause for the iritis was found.

Diabetes was present in three cases, but in each instance, infections were also present, in one, alveolar abscess; in one, tonsillar abscess, and in one, tuberculosis, syphilis and tonsillar infection.

Several cases came to us with a provisional diagnosis of "iritis from autointoxication." In none of these did we fail to find active infectious processes, such as tonsillar or alveolar abscess, and the previously resistant iritis subsided on relief of the infection without measures specially directed toward the treatment of the supposed "gastro-intestinal autointoxication."

When anemia, weakness, anorexia, achylia, diarrhea or constipation occur in the course of an acute infectious disease, or in certain chronic but clinically evident infections, we recognize that they are the results of disturbance of the functions of the body arising from the infection; but when they are associated with unrecognized infections, together with metastatic lesions of the joints or eyes, we may be tempted to correlate the gastro-intestinal disturbance with the arthritis or iritis, and overlook their common cause. There is no question as to the importance of the regulation of diet, of the correction of constipation, and of all other measures which will improve nutrition and increase bodily resistance to infection; but even these important procedures should not be allowed to supplant or interfere with the search for infectious foci and their eradication.

COMBINED INFECTIONS

There were seventeen patients in whom several infections were present, or in whom there were several

foci harboring the same or different infections in such combination that we could not with certainty determine which infection had given rise to the iritis. These cases have already been referred to in discussing the incidence of the several types of infection.

The patients belonged largely to the dispensary group, and careless habits of life and the physical handicap imposed by the disability arising from some one infection, such, for example, as gonococcal arthritis or pulmonary tuberculosis, no doubt contributed to the lessening of resistance and made the sufferer more susceptible to subsequent infections. The unfavorable action, as regards the host, of one infection on another was probably also a factor in producing the large number of infections and their complications in this group.

But even in this unfavorable residue, the results of treatment directed toward the elimination of the infections were remarkably good, and we had the satisfaction of seeing many hitherto stubborn cases of iritis relieved.

In twelve of the seventeen, recovery followed the removal of infectious processes. In two cases satisfactory results were not obtained despite months of treatment; secondary glaucoma was present in both.

In two we were unable to complete the eradication of infections, and one patient is improving slowly under tuberculin.

THE MECHANISM OF THE PRODUCTION OF IRITIS

Focal infections are very frequent, and yet many persons do not suffer from iritis or other metastatic lesions. Sepsis, streptococcal or pneumococcal, is also frequent, but metastatic lesions of the eye relatively rare. Given an alveolar or tonsillar abscess, what are the causes which lead to the production of iritis or arthritis in one person and not in another, at one time and not at another? An adequate answer to this question requires a more complete knowledge of the mechanism of immunity than we now possess, and certainly a discussion of what is already known would require more space than is at our disposal. A consideration of some of the factors involved is possible, however.

Iritis can be produced in animals by intravenous injection of bacteria, as shown by Stock and others.

Bacteria reach the eye by the circulating blood, and can be recovered from the eyes of animals in which iritis has been experimentally produced.

In some recent experiments we have produced iritis in rabbits by intravenous injection of the streptococcus, *B. mucosus capsulatus* (Friedländer), *B. pyocyaneus,* and the gonococcus. Usually, however, in order to accomplish this, large doses must be given, so that a condition of sepsis is created, and then only in occasional animals is iritis produced. Certain of these animals recover, and the lesion of the eye heals.

If one of each of a series of rabbits is injured by intra-ocular injection of minute amounts of dead bacteria, and then after the eyes have healed and all active inflammation has disappeared, an intravenous injection of living bacteria is given, there follows an inflammation of a larger proportion of the injured eyes than of the control eyes. By this procedure we have produced ocular inflammations by the injection of staphylococci as well as streptococci. Such experiments bear directly on the problem of recurrences of iritis.

In addition to the factors of sepsis, fortuitous embolism, and previous trauma of the eye, changes in the organisms themselves must be considered in a study of the causes which determine the occurrence of lesions of the eye. In a case of streptococcal infection of the tear sac which had presumably given rise to iritis, we were able to produce iritis in rabbits by injection of streptococci when first isolated from the patient.[3] Later the same cultures and other cultures obtained at subsequent dates from the patient failed entirely to produce lesions of the eye. We were not able to make out any changes in morphology or cultural reactions coincident with the change in localization with respect to the tissues of the eye.

From our clinical study and from our experiments thus far, it would appear that not one but several factors are concerned in the production of iritis, among which may be noted the presence of a focus of infection in which bacteria may live and multiply, partially protected from the resisting forces of the host; the periodic entrance into the blood stream of these organisms and their lodgment in the eye, either by reason of their great number as in sepsis, or by fortuitous embolism; changes in the eye itself, either in vascular anastomoses, or in susceptibility of the ocular tissues owing to previous injury; and finally changes in the organism itself, whereby it becomes better able for a time to maintain itself in the tissues of the eye. Such adaptations on the part of the organism do not necessarily imply any demonstrable change in its morphology or cultural reactions.

CHYLOTHORAX, CHYLOUS ASCITES AND LYMPHOSARCOMA

REPORT OF CASE

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Chylothorax is a comparatively rare disease. The case herein reported was typical and was fortunately followed by a postmortem examination.

REPORT OF CASE

Clinical History (by Dr. Tuley).—Mrs. M., aged 58, married thirty-six years, with two children living, had five brothers and sisters, of whom one died of "brain fever," one of typhoid fever and one of pneumonia, those living being in good health. The menopause occurred seven years ago, without complications. The patient has always been robust, the normal weight being about 200 pounds. For several months she complained of pain in the scapular regions of both sides, and could not lie on her back. For a year she has had pain and fulness in the epigastrium after eating. She had had an acute attack of tonsillitis in September, 1915, being then attended by Dr. W. F. Boggess. Recovery from this was uneventful.

I first saw the patient, Oct. 4, 1915, for an attack of dyspnea, the cause of which seemed apparent as the chest was full of sonorous and sibilant râles, and the breathing was typical of asthma. She was given a calomel purge, kept quiet and improved, but on the 21st was seen by Dr. Frazier in my absence from the city, for a recurrence of the dyspnea. In view of the condition of the throat, one tonsil having a

3. Irons, E. E.; Brown, E. V. L., and Nadler, W. H.: The Localization of Streptococci in the Eye, Jour. Infect. Dis., 1916, xviii, 315; abstr., THE JOURNAL A. M. A., March 18, 1916, p. 920.

thin patch on it, and a severe pyorrhea alveolaris, it was deemed advisable to administer some autogenous vaccines, which was done, during the next ten days, with a cessation of the adventitious sounds, but no improvement in the dyspnea. November 1, a careful examination was made of the thorax, and the presence of fluid diagnosed in the left pleural cavity. A peculiar feature of the chest findings at this time was the presence of bronchial breathing over the entire left lung, anterior and posterior, with intense flatness over the left base. At this time she was seen by Dr. Weidner, and the diagnosis of pleural effusion confirmed. November 2, a thoracentesis was done through the eighth interspace, and 3 pints of thin milky white fluid were withdrawn. The appearance was that of pus, but an examination showed it to be free of cells and to be a sterile chylous fluid. The relief from the dyspnea was almost immediate, there being but little cough following the aspiration.

November 8, with a return of the dyspnea corroborated by chest findings, the left pleural cavity was again tapped and 3 pints of chyle removed.

November 14, 3½ pints were withdrawn; November 24, 4 pints; December 2, 4 pints; December 6, 4 pints; December 30, 3½ pints were withdrawn from the right pleural cavity; February 6, 4 pints of serous fluid from the right and 2 pints from the left; February 15, 2 pints of chyle from the right and 1½ pints from the left; February 20, 3 pints from the right; February 29, 3 pints; March 8, 4 pints; March 13, 3 pints; March 18, 2¾ pints, and March 26, 3 pints, all from the right. The total quantity of chylous fluid removed from this patient's chest was 48¼ pints.

TABLE 1.—CHEMICAL ANALYSIS OF THORACIC FLUID *

	Drawn			
	February 6		December 6	November 24
	Left Side	Right Side		
Specific gravity	1.0158	1.0178	1.013	1.0145
Total protein	3.9%	4.03%	3.43%	3.5%
Sugar	.295%	.257%	.4%	.49%
Ether soluble material	.567%	.307%	2.63%	2.33%
Ash			.91%	.79%
Total solids	5.26%	5.26%	7.64%	7.7%

* Analysis by Miss Francke in University of Louisville Laboratory of Chemistry.

TABLE 2.—BLOOD COUNTS

	November 24 Dr. Horine	December 9 Dr. Moore	December 22 Dr. Moore	March 26 Dr. Moore
Red cells	4,900,000	4,900,000	4,890,000	4,800,000
White cells		10,000	9,520	25,200
Hemoglobin	78%*	85%	.....	.....
Polymorphonuclears.	89.1%	82%	88%	95.63
Small lymphocytes.	9.1%	6%	8%	6.
Large lymphocytes.	1.0%	3.5%	3.4%	3.6
Eosinophils	.5%	.7%	.2%	.....
Transitionals	.3%	1.5%	.4%	.....

* Sahli.

December 20, a spot developed on the right tonsil ¾ by 2 inches in size. The exudate was thick, dirty white, very tenacious, leaving a bleeding surface when removed, and looked very much like the membrane of diphtheria. At this time the patient was seen by Dr. A. O. Pfingst. Bacteriologic examination was negative for the Klebs-Löffler bacillus, but the typical spirilla and organisms of Vincent's angina were found, associated with all varieties of pus-producing organisms. At this time a chain of enlarged glands was found in the right neck, which remained large up to the time of her death.

The patient failed rapidly from the middle of March. Emaciation was progressive, and sedatives were required constantly to quiet the restlessness, though no great pain was complained of. Marked edema of the lower extremities developed, and a chylous ascites was present during the last two weeks. A small quantity of chylous fluid was aspirated from the peritoneal cavity a few days before she died. Death occurred quietly at 5 a. m., April 8, 1916.

The chemical analysis of the thoracic fluid (Table 1) follows closely that given by Wells.[1]

1. Wells: Chemical Pathology.

Urinalysis, November 23, revealed: specific gravity, 1.018; acid; no sugar; no albumin; triple phosphates; crystals; few leukocytes; hyaline and granular casts.

October 5, the specific gravity was 1.012, and the urine was negative except for crystals of ammonia, urates and a few leukocytes.

Dr. Bayless' report of the Roentgen-ray examination, December 3, showed the right side normal with a movement of 2 inches of the right diaphragm. On the left side from below the third rib in front, it was dark; above the third rib the lung was clear but somewhat emphysematous. The area was so dark that no details of the lung could be made out. It might have been a thickened pleura with fluid or some new growth. The heart was in the normal position. The posterior mediastinum above the third rib was clear. Below it was dark, but evidently from the same condition which caused the dark area in the left chest.

The Wassermann reaction on the blood taken December 1 was negative, and the cultures made from the fluid from the left pleural cavity were negative. A few lymphocytes were noticed.

A careful examination of the blood between the hours of 9 p. m. and midnight was made by Dr. Moore without finding any evidence of filariae.

REVIEW OF LITERATURE

The literature of chylothorax is very meager, though there are a number of references to chylous ascites.

The most complete report which has been accessible is by Sale,[2] who reported one case and reviewed the literature on the subject complete to the year 1899. He found a record of forty-one cases reported in the past 260 years.

The etiology of this condition is of interest, and the causes given by Sale in the recital of these reported cases are: new growths or tuberculous lymph nodes, 9; thrombosis of the left subclavian vein, 4; secondary growths in the duct itself, 9; perforating lymphangitis, 2; aneurysm of the duct itself, 2, and 1 each of: thrombosis of the duct; operation for removal of lymph glands of the neck; mitral disease; filariae, and inflammatory thickening of the mesentery.

Warthin[3] has a very complete description of the various anomalies and pathologic conditions of the thoracic duct which may result in escape of the chyle.

He describes thrombosis of the chylous duct as one of the most frequent complications resulting in chylothorax, and its etiology is given as hemorrhage into the duct, inflammation of its wall, trauma, tuberculosis, metastasis of malignant tumors, infection, filariae, pressure of neighboring tumors, aneurysms, anomalous vessels, exostoses of the vertebra, obliteration of the left subclavian vein, etc.

The symptomatology of thoracic duct thrombosis is purely one of obstruction so far as its distinctive features are concerned. Chylous ascites alone or combined with chylothorax or chyluria would point to such an obstruction. Obscure abdominal pains, intestinal disturbances, edema or elephantiasis of the lower extremities or external genitals may occur as features of the clinical picture.

In all cases in which the collateral circulation is inadequate there results a chyle stasis with dilatation of the duct and radicals. The chyle may escape from the distended vessels by transudation or rupture, and may infiltrate the tissues or collect in the serous cavities, giving rise to a chylothorax, chylopericardium or a chylous ascites.

2. Sale: Interstate Med. Jour., January, 1912.
3. Warthin, in Osler's Modern Medicine.

Dock[4] reports a case of chylous ascites and chylothorax in which there was a lymphosarcoma with lymphocythemic blood, though the white cells were not greatly increased.

From the few reports found in the literature it would seem that secondary sarcoma of the testis, lymphocytoma of the mesentery, osteosarcoma or chondrosarcoma of the pelvic bones and primary endothelioma of the peritoneum are the most frequent primary lesions found.

NECROPSY

The postmortem report is abbreviated to those conditions having to do with the chylothorax.

Examination (made April 8, 1916, three hours after death, at the home of the patient by Dr. Graves assisted by Dr. Moore).—The body was poorly nourished. There was marked edema in the lower legs and thighs.

Peritoneal Cavity: Superficial fat was 3 cm. thick and bright yellow. About 500 c.c. of thin, milky fluid was in the cavity. Small fatty globules floated on the surface of this fluid. The peritoneum was everywhere smooth and glistening. The liver reached 15 cm. below the base of the xiphoid cartilage, and 5 cm. below the costal margin in the right midclavicular line. Diaphragm: Left, sixth rib; right fifth interspace. The appendix was retrocecal, free, pale, curled on itself, lying toward the pelvis. The mesenteric nodes were enlarged. The foramen of Winslow was patent, but the lesser sac was encroached on by a moderately firm, nodular, retroperitoneal mass. The lymphoid tissue is described later.

Pleural Cavities: The right lung was pushed upward by a collection of milky fluid which filled the lower half of the right cavity so that the lower border of the organ lay opposite the fourth rib anteriorly and the sixth rib laterally. This fluid was similar to that in the peritoneal cavity except that some of it soon after the admission of air appeared clotted. Firm, fibrous adhesions bound the lung to the wall over the greater portion of its surface except the inner aspect of the apex. Between it and the wall there was no fluid or other obvious abnormality. The left pleural space was entirely obliterated with dense, fibrous adhesions except over an area about the size of the palm between the infero-lateral aspect of the lower lobe and the chest wall, where there was a shallow pocket filled with the same chylous fluid.

Pericardial Cavity: This contained about 15 c.c. of clear serous fluid.

Lungs: Both organs were compressed and covered with fibrous tags. Crepitation was much diminished. The organs were doughy and pitted on pressure. On section they were dark red and did not present a normal spongy appearance.

Spleen: This organ was enlarged, was firmer than normal, had a pale gray capsule, measured 6 by 9 by 18 cm. and, on section, presented a great many round or oval, fairly well circumscribed, raised, grayish, homogeneous nodules in dark red parenchyma. The largest deposit was about 25 mm. in diameter.

Pancreas: The head was involved in a tumor as described below. The tail was negative.

Tumor and Its Relations: The lymph nodes from the neck to the pelvis, especially those lying in the posterior mediastinal space and retroperitoneal, were involved in an apparently primary neoplasm which was growing around the structures in those regions but did not infiltrate any except the head of the pancreas. The cervical, axillary, supraclavicular and infraclavicular and bronchial nodes varied in size, the largest being about 2 cm. in greatest diameter, were encapsulated and moderately firm, and, on section, pale flesh color and homogeneous except the last, which were speckled with black. The posterior mediastinal nodes were much larger, reaching a maximum diameter of 4 cm., but were encapsulated and softer and paler on section. Below the level of the diaphragm the nodes seemed conglomerate in a mass larger than one's fist, and involved the head of the pancreas. On section this tissue was moist, pale, homogeneous and typically like fish flesh, while scattered in it could be seen lobules of pancreatic tissue. The lymph nodes along the lesser curvature of the stomach, in the gastrohepatic omentum and retroperitoneal along the aorta were enlarged, those in the gastrohepatic omentum reaching a diameter of 4 cm., while those about the abdominal aorta decreased in size to the region of the bifurcation, where they measured about 2 cm. in diameter, but were of the same appearance as those described above.

In situ structures about the innominate veins were dissected, primary incision being extended at right angles laterally along the left clavicle. No abnormality or rupture of the thoracic duct could be found. In posterior mediastinum duct, esophagus and vessels were surrounded by the tumor, but none of these structures was invaded macroscopically. The heart, lungs, trachea, esophagus, aorta, thoracic duct, pancreas, kidneys and suprarenals were removed en masse. The duct was slit open and followed to its beginning branches. Its mucosa was smooth everywhere.

Microscopic Examination.—Sections from the retroperitoneal mass just below the diaphragm and from the cervical, axillary, clavicular, mediastinal, gastrohepatic, abdominoaortic and iliac glands presented practically the same appearance. The normal markings were largely hidden by a diffuse accumulation of cells of the lymphocyte series, many of embryonic, undifferentiated type. They were mostly round, and varied considerably in size. The smaller cells were typical lymphocytes. The larger ones had less regularly outlined cytoplasm and nuclei. The cytoplasm was nongranular. The nuclei were paler, relatively larger and less distinct, and contained coarse chromatin granules. Many of the larger cells were multinucleated. Monasters and diasters were numerous, and an occasional multiple mitosis was seen. In a few places a moderate number of eosinophils were noted. In most of the lymph nodes, tumor cells were infiltrating the capsule and the surrounding fatty and fibrous tissue. Microscopic diagnosis, lymphoblastoma, malignant lymphosarcoma; round cell sarcoma.

Lung: At one side was an area of invasion by cells similar to those previously described as forming the tumor. These could be seen in the lymphatics along some vessels, but were also made out within the vessels. At the edge of this area these cells were advancing along the alveolar walls and into the alveolar spaces. Microscopic diagnosis, lymphoblastoma.

Spleen: One section showed loss of normal splenic structure, a few trabeculae and arterioles lying in the midst of a diffuse growth of lymphoblastic cells similar to those described in the tumor. The stroma in places had undergone fibrinoid change. Another section presented fairly well circumscribed islands of tumor cells, between which splenic tissue was compressed with a relatively increased number of trabeculae. In such interinsular splenic tissue some sinusoids were greatly dilated, and there were clusters of endothelial leukocytes filled with hemosiderin. In the islands of the tumor cells were spots of apparent hemorrhage. In others small areas of fibrinoid change of stoma were seen. Occasional eosinophils were noted. Outlying from the larger islands of the tumor cells were smaller aggregations of similar cells suggesting lymph nodules. Some of these, however, involved cross sections of two or three trabeculae and one or two arterioles. Microscopic diagnosis, lymphoblastoma.

Pancreas: Four sections showed diffuse infiltration of the fat about the pancreas by lymphoblastic cells like those previously described, and more or less diffuse infiltration of the pancreas itself by like cells. The cells seemed to be advancing from without by expansion. In places small islands of glandular tissue were surrounded by such cells. In other places such cells were infiltrating only in the connective tissue stroma between the glands. Occasionally a group of pancreatic cells showed karyolysis or karyorrhexis or complete granular degeneration. Such groups were invaded chiefly by polymorphonuclear leukocytes. In some places there was a relative increase of fibrous tissue in the stroma, in which regions some acini were dilated with secretion and contained a few polymorphonuclear leukocytes. Among the invading

4. Dock: Am. Jour. Med. Sc., 1907.

lymphoblastic cells eosinophils were not infrequent. Microscopic diagnosis, lymphoblastoma invading pancreas, causing injury, reaction and beginning sclerosis.

Final Diagnoses.—Lymphoblastoma of cervical, axillary, clavicular, mediastinal, gastrohepatic, abdomino-aortic and iliac lymph nodes, invading pancreas and lung, compressing other structures adjacent to them and metastasizing in the spleen. Chylothorax, bilateral. Chylous ascites. Gastric ulcers. Hemorrhage into intestine. Chronic endocarditis. Chronic aortitis. Edema of legs. Fibrous pleural adhesions, bilateral. Superficial ecchymoses. Acute dermatitis of left leg. Multiple leiomyomas of the uterus. Senile ovaries. Postmortem change in the suprarenals. Chronic gingivitis. Atalectasis of lungs.

AN UNUSUAL CASE OF CHRONIC INTERSTITIAL NEPHRITIS

WITH FINDINGS IN BLOOD AND URINE*

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History.—A man, E. O. M., aged 39, married nine years, with no children, fruit grower, an occupation which he had followed for ten years, whose father and mother were living and well, as were four brothers and four sisters, he being among the younger of the children, had measles when he was a child, but after that time had had nothing more serious than "colds" in the head, and had not found it necessary to consult a doctor until March, 1915. His habits had been good; he rarely took a glass of beer, used three cigars a day, never more, and drank coffee or tea at meals three times a day. He denied having had any venereal infection, and the Wassermann reaction was negative. His appetite had always been good, his bowels regular, and his weight practically stationary, 180 to 185, he being about 6 feet tall.

He believed his present trouble had begun in March, 1915, when he noticed his vision was becoming dim, for which he thought it necessary to consult an oculist at Poughkeepsie. His oculist directed him to give up the use of tobacco, which advice he followed, though he was smoking only three cigars a day. Soon after this he had periods of severe, persistent headaches, with complete remissions. The headaches were accompanied by loss of appetite, increasing weakness and loss of weight, until June, 1915, when he was examined by his family physician, who diagnosed Bright's disease and prescribed a diet free from meat and salt, and 2 grains of sodium nitrite three times a day. He had continued both the diet and medicine until he came under my observation. During the summer and autumn he had continued his daily outdoor work, but had yielded to the advice of his physician to spend the winter in Florida, whither he was bound when he came to me on Nov. 30, 1915.

He walked into the office and desired me to express an opinion as to whether it was necessary for him to continue his journey south. This is mentioned only to show that his symptoms were so slight as not to impress him or his family with the belief that he was seriously ill.

On being questioned, he said he was weaker than usual, and exertion made him a little breathless; at times his head ached, and he had a little vertigo after he stooped over. He could not see printed matter clearly to read. He had little appetite, but his bowels moved regularly. He had lost gradually some 15 or 20 pounds of weight in the course of the six months. He said that during the previous week or ten days whenever he was about to lose consciousness in sleep, something seemed to give way and he awoke with a start. This was particularly annoying at night, but during the day he might obtain, at intervals, a few minutes' sleep.

Examination.—The man was found to measure 6 feet tall and to weigh 165 pounds. He was evidently undernourished, and the skin and mucous membranes were very pale. The odor of the breath was distinctly urinous, the tongue was flabby and pale, with a moderate coating over the posterior half; the tonsils were not abnormal, and though several of his teeth had been filled, there was neither pyorrhea nor decayed roots. There was a very marked tremor of the muscles of the arms and legs. Examination of the eyes showed normal reflexes, but the eyegrounds, as subsequently corroborated by Dr. A. E. Davis, had several white areas, and three or four feathery hemorrhages. The temperature was 97, the respirations 16 per minute; there was a good Litten diaphragm phenomenon, and the signs of a moderate emphysema. The arteries were distinctly thickened and tortuous. The rhythmic apex beat of the heart was seen and felt in the fifth interspace within the midclavicular line. The orthodiagram of the heart measured 8.9 cm. from midsternal line to apex, and 4.3 cm. from midline to right border. The aortic shadow was 4.5 cm. wide. There were no thrills felt, and the first sound at the apex was loud and clear, with reduplicated second sound. At the junction of the third rib with the left edge of the sternum there was a distinct systolic blow, with a loud, ringing second sound. The measure of the blood pressure showed it to be systolic 270 mm., diastolic 140 mm. mercury, and there was a pulse frequency of 80. The electrocardiogram indicated a preponderance of the left ventricle. The abdominal examination was negative. There were no glandular enlargements. The deep reflexes were greatly exaggerated, and a fine tremor of the muscles could be felt when the extremities were held. There was neither Kernig nor Babinski phenomenon, and there was no edema of the ankles.

TABLE 1.—SHOWING AMOUNT OF BLOOD SUGAR, URIC ACID, UREA NITROGEN AND CREATININ, THE CARBON DIOXID COMBINING POWER OF BLOOD PLASMA, AND THE RATIO OF UREA OF BLOOD AND URINE, AS WELL AS PHENOLSULPHONEPHTHALEIN EXCRETION

Day in December, 1915	Sugar	Uric Acid, Mg. per 100 c.c.	Urea Nitrogen, Mg. per 100 c.c.	Creatinin, Mg. per 100 c.c.	Carbon Dioxid		Ambard Ratio	Phenolsulphonephthalein
					C.c.	Mg.		
1	0.18	6.5	97	17.5	0.36	0.50	....	0
4	0.225	6.4	129	21.5	0.33	0.44	....	0
7	0.18	6.3	129	21.8	0.35	0.48	1.58	0
10	0.22	7.0	132	22.3	0.38	0.53	....	0
14	0.21	6.1	144	28.9	0.36	0.50	....	..
17	0.20	5.6	150	24.2	0.27	0.33	....	..
21	0.18	5.0	186	28.6	0.30	0.38	....	..
24	0.24	7.7	200	26.7	0.24	0.27	....	..

The blood examination revealed a secondary anemia with hemoglobin 35 per cent., erythrocytes 2,800,000, and a normal white cell and differential count. The urine excreted in twenty-four hours was 2,200 c.c., with specific gravity 1.010, no albumin and no casts. The percentage of chlorid and nitrogen was not determined. No phenolsulphonephthalein[1] was demonstrated in the urine. The chemical examination of the blood[2] revealed a retention of the nitrogen[3] constituents as shown in Table 1. The urea nitrogen was 97, uric acid 6.6, creatinin 17.5, blood sugar 0.18, blood plasma carbon dioxid combining power 0.36 c.c., or 0.50 mg.

Treatment and Course.—Because of these findings, he was continued on a carbohydrate diet[4] of cane sugar 250 gm. and water 1 liter, and three days later a second examination of the blood was made. This showed an increasing retention of urea to 129, and creatinin 21.5, in spite of the absence of nitrogen intake. The carbon dioxid combining power of the blood plasma had diminished to 0.33 c.c., or 0.44 mg. There was no excretion of phenolsulphonephthalein on repeated tests.

* From the Medical Department of the New York Post-Graduate Medical School and Hospital.

1. Frothingham, Fitz, Folin and Denis: The Relation between Nonprotein Nitrogen Retention and Phenolsulphonephthalein Excretion in Experimental Uranium Nephritis, Arch. Int. Med., 1913, xii, 245.
2. Myers, V. C.; Fine, M. S., with the cooperation of Lough, W. G.: The Significance of the Uric Acid, Urea and Creatinin of the Blood in Nephritis, Arch. Int. Med., 1916, xvii, 570.
3. Frothingham, C., and Smillie, W. G.: The Relation between the Phenolsulphonephthalein Excretion in the Urine and the Nonprotein Nitrogen Content of the Blood in Human Cases, Arch. Int. Med., 1914, xiv, 541.
4. Frothingham, C., and Smillie, W. G.: A Study of Different Nitrogenous Diets in Chronic Nephritis, Arch. Int. Med., 1915, xv, 204.

Satisfied that his condition was desperate,[5] because of the marked retention of nitrogen in the blood, I considered a functional test of the kidneys, such as suggested by Mosenthal,[6] to be contraindicated, and was contented to have examined the two-hour specimen for volume, specific gravity, percentage of sodium chlorid and nitrogen, and the presence of albumin or casts (Tables 2 and 3). This examination showed an increased amount for the night urine, but this should not be emphasized, since he was permitted fluid whenever he wished and, as his nights were restless, he drank considerable. The inability of the kidneys to concentrate was shown by the specific gravity of the specimens, which was low, varied only slightly, and diminished as death approached. The low percentage of chlorids might be due to

TABLE 2.—SHOWING AMOUNT OF URINE VOIDED IN TWO-HOUR PERIODS AND THE LOW, SLIGHTLY VARYING SPECIFIC GRAVITY, AND PERCENTAGE OF SODIUM CHLORID AND NITROGEN (DEC. 9, 1915)

Time	Urine, C.c.	Specific Gravity	Sodium Chlorid		Nitrogen	
			Per Cent.	Grams	Per Cent.	Grams
8 to 10	50	1.010	0.30	0.150	0.44	0.220
10 to 12	130	1.008	0.40	0.520	0.39	0.507
12 to 2	160	1.008	0.30	0.480	0.41	0.656
2 to 6	350	1.010	0.35	1.225	0.42	1.470
6 to 8	165	1.010	0.35	0.577	0.43	0.709

the salt-poor diet to which he was restricted, as well as to the fact that he had been so restricted for five months. The nitrogen percentage remained low, even after increased intake.

After three days more of nitrogen-poor[7] diet, the blood examination showed the urea nitrogen to be 129 mg., uric acid 6.3, creatinin 21.8, blood sugar 0.18, carbon dioxid combining power of the blood plasma 0.35 c.c., or 0.48 mg. The restriction of his nitrogen intake was continued, and on December 10 examination of the blood showed the figure for urea nitrogen to be 132 mg., uric acid 7, creatinin 22.3, blood sugar 0.22, carbon dioxid combining power 0.38 c.c., or 0.53 mg. It is quite noteworthy that following the restriction of diet there was a slight rise in the carbon dioxid combining power, though an increased retention in the blood of urea and creatinin. Because the urea nitrogen had increased, the nitrogen-poor diet was continued, and on December 14 the blood examination showed urea nitrogen 144, uric acid 6.1, creatinin 28.9, blood sugar 0.208, carbon dioxid combining power of the blood plasma 0.36 c.c., or 0.50 mg.

It was now quite evident the patient's condition was becoming more serious, for the nitrogen was increasing and the carbon dioxid blood plasma combining power was diminishing. He had been on a protein-poor diet for fourteen days, and though the retention of nitrogen had continued to increase, it seemed unwise not to allow a small amount of protein to spare the body tissues; therefore he was permitted a diet containing some protein, though the nitrogen intake was still kept low, 30 gm. of protein with nitrogen content of 4.8 gm. and 1,800 calories. On December 17 the blood examination showed urea nitrogen 150, uric acid 5.6, creatinin 24.2, blood sugar 0.20, carbon dioxid combining power of blood plasma 0.27 c.c., or 0.33 mg. The restricted nitrogen intake was continued and on December 21 the blood examination showed urea nitrogen 186 mg., uric acid 5, creatinin 28.6, sugar 0.184, carbon dioxid combining power 0.30 c.c., or 0.38 mg. During the night of December 21 he had a profuse epistaxis and began to complain of precordial pain. On palpation over the second, third and fourth left interspace in the parasternal line, one could feel a friction rub, and on auscultation a to-and-fro friction sound could be heard. The venous pressure at this time had evidently increased, as shown by the marked engorgement of all the veins of the extremities. The pulse rate increased somewhat over 100, and the temperature rose from 96.4, which it registered on December 20, to 98.6. On December 24 the blood examination showed urea nitrogen 200, uric acid 7.7, creatinin 26.7, blood sugar 0.236, carbon dioxid blood plasma combining power 0.24 c.c., or 0.27 mg.

This examination showed the most critical condition, and death followed, December 25, at 10:40 a. m., without coma or convulsions, but with a very rapid failure of the heart, which was evident for about an hour and a half before death.

The pulse rate remained about 80 until December 23, when it began to increase and rose to 100, coincident with the development of his pericarditis. The rate of 100 to 110 was maintained until just before death, when it reached 120, and later became imperceptible at the wrist. The temperature remained about 98 until December 20, when it gradually sank to the point of 96.6, and on December 21 reached 96.4. Then with the onset of his pericarditis it gradually rose to 98.6, which it reached at the time of his death. Respirations were usually 18 to 20, except during the periods of sleep, when they rose to from 30 to 36, and were accompanied by vigorous twitching of the legs and arms, but at no time was there a Cheyne-Stokes phenomenon.

The intake of fluid varied between 1,000 and 2,500 c.c., and the output reached as high as 2,100 c.c., the amount usually being between 1,100 and 1,700 c.c., until the day before death, when it sank to 500 c.c., and this was obtained by catheterization, as he was unable to void during the last forty-eight hours. Twice during the period of observation he vomited, and there were several watery bowel movements in the day. Aside from the increasing uremia, this was unaccounted for.

The blood pressure when he first came under observation was, systolic 270, diastolic 140 mm. of mercury, with a pulse frequency of 80, gradually diminishing to systolic 215, diastolic 110, about December 10. Then the diastolic pressure rose to 130, systolic remaining at 220, until December 16, or nine days before death, when the systolic fell to 190 and the diastolic to 110 mm. of mercury, remaining so for two days. On December 18 the systolic pressure rose to 225 and the diastolic to 130 mm. of mercury, again gradually diminishing until December 24, when the systolic registered 175 and the diastolic 90. With the onset of the pericarditis there was a marked rise in the venous pressure.

Shortly after entering the hospital he began to have attacks of epistaxis, which were easily controlled by ice water applied

TABLE 3.—SHOWING AMOUNT OF URINE VOIDED IN TWO-HOUR PERIODS AND THE LOW, SLIGHTLY VARYING SPECIFIC GRAVITY, AND PERCENTAGE OF SODIUM CHLORID AND NITROGEN (DEC. 13, 1915)

Time	Urine, C.c.	Specific Gravity	Sodium Chlorid		Nitrogen	
			Per Cent.	Grams	Per Cent.	Grams
8 to 10	115	1.008	0.35	0.402	0.40	0.460
10 to 12	150	1.006	0.35	0.525	0.39	0.585
12 to 2	190	1.008	0.35	0.665	....	.....
2 to 4	50	1.005	0.30	0.150	0.30	0.150
4 to 6	170	1.008	0.35	0.595	0.36	0.612
6 to 8	180	1.008	0.30	0.540	0.35	0.630

to the face, until December 21, when he had a profuse hemorrhage. Subsequent to this the pericarditis became evident and the next day, December 23, he complained of a pain in his chest, and the same day the palate and uvula became edematous.

The first chemical examination of the blood (Table 1) shows urea nitrogen, uric acid, creatinin and sugar to be well above normal, and the combining power of the blood plasma to be at the low figure of 0.5. As subsequent examinations were made, each one of these figures showed a progressive impairment of his metabolism, as indicated by the increasing retention of nitrogen and decreasing combining power of the blood plasma. Of four tests of the phenolsulphonephthalein, after only one was a trace of the dye found in the urine, the others being absolutely negative. The ratio between the urea in the

5. Myers, V. C., and Lough, W. G.: The Creatinin of the Blood in Nephritis: Its Diagnostic Value, Arch. Int. Med., 1915, xvi, 536.

6. Mosenthal, H. O.: Renal Function as Measured by the Elimination of Fluids, Salts and Nitrogen, and the Specific Gravity of the Urine, Arch. Int. Med., 1915, xvi, 733.

7. Denis, W. J.: Effect of Ingested Purins on Uric Acid Content of the Blood, Jour. Biol. Chem., 1915, xxiii, 147.

blood and the urea in the urine, as suggested by Ambard, gave a figure of 1.58, while with McLean's index[8] the figure of 0.27 was obtained, both showing very strikingly the impaired secretory power of the kidney.

It is particularly interesting to note that during the time he was on the nitrogen-poor diet the creatinin jumped from 17.5 to 21.5 and remained at that figure for six days, subsequent to which it made a further increase to 28.9, at which point it remained until the day before death. The same temporary cessation of retention is shown in the urea figures, which for a week subsequent to the nitrogen-free diet remained almost stationary, but subsequently increased very rapidly, reaching the high point of 200 the day before death.

SUMMARY

A case of chronic nephritis with hypertension is described in which the following history was traced:

1. The respiration rate was of an unusual periodic type, increasing during sleep to almost double the frequency of the waking period, but not of the Cheyne-Stokes or Biot type, though uremia was the cause of death.

2. The blood sugar and the blood nitrogen, as well as the carbon dioxid combining power of the blood plasma, are shown as indicating the condition and course of the disease.

3. The absence of phenolsulphonephthalein excretion, together with other urinary findings, are recorded.

4. Though the arteriosclerosis, retinal changes and high pressure were extreme, there was the physical evidence of only the slightest hypertrophy of the heart.

5. Two days before death a profuse epistaxis occurred, followed by edema of uvula and palate and the development of fibrinous pericarditis.

CONCLUSIONS

1. With the examination of the urine only, the seriousness of this patient's condition would not have been discovered.

2. The phenolsulphonephthalein excretion test is of value to indicate the status praesens of the patient, but the amount of urea and creatinin in the blood, particularly the latter, give a definite clue to the progress and prognosis.

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Preservative Value of Cleanliness.—Modern bacteriology has placed on cleanliness a preservative value which may appear surprising in respect to its efficiency, particularly in conjunction with low temperatures which inhibit the development of micro-organisms detrimental to foods. As an example of what such sanitary precautions can accomplish in the case of readily deteriorating milk Sherman states that "three American dairy farms exhibited raw milk at the Paris Exposition of 1900, one of them sending weekly shipments throughout the summer, each of which was kept on exhibition in the raw state without spoilage until the next shipment arrived. It was difficult to convince the jury of European experts of the fact that 'cleanliness and cold' were the only preservatives needed to accomplish the keeping of raw milk in a fresh, sweet condition for two to four weeks in midsummer." Precisely such methods, combined with modern transport facilities, have made it possible to extend the range of milk supply in our large cities literally hundreds of miles and to bring an indispensable food at a reasonable price into every home. There is, indeed, a profound difference between marketing milk in the familiar manner now practiced and the older mode of distribution when goats or cows were driven in front of the home to be milked there.—Changes in the Food Supply and Their Relation to Nutrition, Lafayette B. Mendel.

8. McLean, Franklin C.: Clinical Determination of Renal Function by an Index of Urea Excretion, THE JOURNAL A. M. A., Feb. 5, 1916, p. 415.

THE EXAMINATION OF NORMAL GASTRIC SECRETION BY THE FRACTIONAL METHOD

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In view of the peculiar advantages which might be gained from a study of the entire cycle of secretion during gastric digestion, a considerable number of both normal and pathologic stomachs have been analyzed at the Wesley Hospital during the last eighteen months, according to the method of Rehfuss. As the result of this work, it is believed that the method of fractional gastric analysis offers the only logical method of examination for determining the true secretory and motor state of normal and abnormal stomachs, and that consequently it should replace the older stomach tube method, by which merely the momentary secretory and motor condition can be estimated.

In all, about 150 cases have been examined by the fractional method. These include a normal series on proved healthy medical students and nurses, and an abnormal series on private and clinical hospital patients. The clinical diagnosis in the pathologic series, based on the symptoms, physical examination, laboratory and Roentgen findings, was checked in a large number of cases by a pathologic diagnosis at operation.

The technic employed was that of Rehfuss with a number of changes and additions. In all cases the tube was first inserted into the twelve hour fasting stomach, the entire content being removed, measured and examined for free hydrochloric, lactic and total acidity, and for mucus, bile and food particles. A straight Ewald meal consisting of two slices of bread and two glasses of water was immediately introduced into the empty stomach and the tube reinserted. At fifteen minute intervals, 5 c.c. specimens were withdrawn until the specimens were macroscopically free from food particles and until the free and total hydrochloric acid had returned to approximately their relative positions as found in the fasting content. Care was exercised against the swallowing of mucus throughout the examination, and the individual was protected as far as it was possible from all forms of psychic stimulation, especially that of the sight or smell of food. Titration was performed with tenth normal sodium hydroxid. Phenolphthalein was used as indicator for total acid, and dimethyl-amido-azobenzol for the free acid.

In this way a curve was constructed, beginning with the fasting content, and on fifteen minute analyses after the administration of the Ewald meal until the aspirations showed no further food remnants or until the secretion had returned to that of the fasting state.

Only by this method of introducing the test meal into the empty stomach can the true appetite secretion, or with this lacking, the secretory response to food stimulation, be ascertained.

In the normal series, consisting of twenty-four cases, care was taken to select only those subjects who were free from both general and gastro-intestinal abnormalities so far as history and physical findings disclosed. In six of the series a second analysis was run under as nearly the same conditions as the first as possible, in order to determine whether repeated examinations of the contents of the same stomachs would give the same secretory curve. At least two weeks

elapsed between the first and the second analysis in all cases.

Table 1 gives the results of analysis of the residuum in the series of twenty-four fasting stomachs: Summarized, the highest total acidity was 40 in terms of tenth normal sodium hydroxid, the lowest was 5, with an average of 17. The highest free hydrochloric acidity was 30, while in 62.5 per cent. the residuum contained no acid, giving an average of 6⅜ free acid for the series. The greatest quantity was 210 c.c., the smallest 5 c.c., with an average of 48⅙ c.c. Bile was present in the residuum in 41.66 per cent. of cases.

The surprising feature in this as in the Rehfuss series is the quantity of residuum which may be found in the normal fasting stomach by this method as compared with former ideas of the boundaries of normal, ranging for 20 to 60 c.c., according to various authorities. "The old tube which is propelled from above has its position always fixed"; consequently, if either too little or too much tubing is introduced, the eye of the tube, being above the most dependent portion of the greater curvature, is unable to take up the entire amount of residuum. The eye of the Rehfuss tube, on the other hand, seeks the most dependent portion of the greater curvature by gravity, and remains in this position for a considerable time, as I have repeatedly proved by passing the tube before the fluoroscope and allowing a stream of bismuth suspension slowly to pass through the tube and settle along the floor of the stomach. Since the olive of the Rehfuss tube seeks the most dependent portion, it would seem quite an unnecessary procedure to aspirate with the patient standing or lying in the various postures, recommended by Rehfuss, unless an actual deformity were present in the contour of the stomach.

TABLE 1.—RESIDUUM IN TWENTY-FOUR NORMAL FASTING STOMACHS

Number	Total Acid	Free Acid	Quantity, c.c.	Residue
1	15	9	10	Clear
2	5	0	18	Bile tinged
3	8	0	35	Bile tinged
4	9	0	30	Bile tinged
5	22	15	25	Clear
6	22	12	30	Clear
7	10	0	5	Clear
8	35	19	50	Clear
9	30	18	40	Clear
10	10	0	30	Bile
11	6	0	18	Clear
12	10	0	35	Clear
13	27	18	125	Bile
14	38	24	150	Clear
15	40	30	35	Clear
16	20	8	50	Bile
17	12	0	90	Bile tinged
18	6	0	15	Clear
19	5	0	28	Bile
20	12	0	32	Clear
21	20	0	55	Bile tinged
22	12	0	10	Clear
23	18	0	210	Bile tinged
24	16	0	50	Clear

In Table 2 are recorded the essential features of the curves of secretion in the normal series.

A detailed study of the various normal charts, in the vast majority of cases, will show a considerable drop in both the total and free acid values at the first fifteen minute period as compared with the fasting residuum. This abrupt fall is undoubtedly due to the dilution of the appetite secretion by the Ewald meal. In seventeen of the cases, either the total or the free or both waves began to ascend within the first fifteen minutes; in four cases the rise began during the thirty minute period, in two cases in forty-five minutes and, in one, only at the end of one hour. Consequently it will be seen that in six instances in the series, there was either no appetite secretion evoked by the Ewald meal or that the reaction to the psychic stimulation was too slight to overcome the diluting action of the meal, and that the beginning of the wave occurred only as the result of the food stimulation.

The curves resulting from the absence or diminution of the appetite secretion closely resemble the delay of the secretory waves observed in the pathologic series in three chronic alcoholic gastritis cases with associated portal congestion.

The varying effect which the Ewald meal may produce on the appetite secretion in different individuals, and its consequent effect on the character of the secretory curve, should not be overlooked.

In not a single instance in the normal series did we record the early steep rise of either free or total acid, classified by Rehfuss as the hypersecretory type of normal curve. This form of curve, however, is frequently seen in pathologic cases, and the steep ascent is called an "irritable rise," since these cases almost without exception have shown a high free hydrochloric acid secretion in the fasting stomach.

TABLE 2.—ESSENTIAL FEATURES OF THE CURVES OF SECRETION IN THE NORMAL SERIES

No.	Beginning of Rise	Time of High Point	Height in N/10 NaOH	Character of Wave	Empty of Food	End of Test	Gastric Cycle	Acid
17	60	1:30	60	Acute				
	*0	1:45	50	Acute	2:00	2*	Complete	
10	45	1:30	50	Curve	not at	....	25 c.c.	38
	60	1:30	28	Plat.	3:00	3	Small amt. of food	24
11	30	1:15	72	Acute				
	30	1:30	48	Curve	2:00	2	Complete	
12	15	1:45	72	Acute				
	15	1:45	62	Acute	2:45	3	Complete	
13	15	60	34	Plat. 1¼ hr.				
	45	1:30	40	Plat.	2:45	3	Complete	
14	15	1:15	78	Acute				
	15	45	28	Plat.	2:30	3:30	Complete	
9	30	1:45	58	Acute				
	30	1:45	32	Plat.	2:30	3	Complete	
3	15	1:15	38	Curve				
	30	1:15	26	Apex	1:45	1:45	Complete	
4	30	1:15	52	Curve				
	30	1:15	24	Plat.	2:30	2:30	Complete	
15	15	1:15	98	Acute	....	....	40 c.c.	82
	30	1:15	76	Apex	1:45	2	Clear	70
16	30	2:15	114	Acute	....	....	35 c.c.	82
	30	2:15	100	Apex	2:15	3	Clear	42
8	15	1:15	75	Acute				
	15	1:15	54	Apex	1:45	1:45	Complete	
1	15	1:30	45	Acute				
	15	1:30	38	Apex	2:00	2	Complete	
5	15	2:00	65	Acute				
	15	1:30	46	Plat.	2:30	2:30	Complete	
2	15	60	50	Curve	....	....	60 c.c.	34
	15	1:45	30	Plat.	3:00	3	Clear	14
7	0	1:15	68	Acute				
	0	1:15	28	Plat.	2:00	2:30	Complete	
6	15	1:15	50	Acute				
	15	1:15	28	Acute	2:30	3	Complete	
18	0	60	54	Acute				
	15	45	26	Curve	2:00	2:30	Complete	
19	15	1:30	38	Plat.				
	30	1:15	18	Plat.	1:45	3	Complete	
20	15	1:30	50	Acute				
	30	1:30	40	Acute	1:45	2:15	Complete	
21	15	1:45	36	Grad.				
	30	2:00	18	Plat. (1 hr.)	2:00	2:30	Complete	
22	45	1:30	46	Plat.				
	45	1:30	34	Curve	2:15	2:30	Complete	
23	30	1:15	50	Plat.				
	45	1:30	36	Curve	2:30	2:45	Complete	
24	15	1:45	36	Plat.	....	....	5 c.c. only aspirated	40 22
	45	1:45	18	Plat.	2:15	2:30		

* Empty.

In summarizing the time of occurrence of the high point in secretion in the series, it will be seen that in the case of the free acid, this occurred in twenty of the twenty-four cases between the one hour and fifteen minute and one hour and forty-five minute periods, with the greatest number occurring at one hour and a half; and that in not a single instance did it occur at the one hour period, the conventional time for removing the Ewald meal, with the old tube. On the other hand, in two instances the high point was attained in forty-five minutes. In general, the same holds true in the case of the high point of the total acid curve, this occurring in nineteen of the twenty-four cases between one hour and fifteen and one hour and forty-

Chart 1.—Composite curve, made by plotting the average acidity of the twenty-four normal stomachs at each fifteen minute period: broken line, total acidity; solid line, free acidity; F. S., fasting stomach.

five minutes, with the greatest number at the one hour and fifteen minute period, and with but three instances in which the high point was at one hour. That the high point of both curves tends to occur at a later point than the one hour period is even more strikingly demonstrated in the pathologic series, in cases showing some form of continued gastric irritability. It is improbable that any abnormal delay in the occurrence of the high point of secretion was caused by the introduction of the test meal into the empty rather than the fasting stomach, since in fifteen of the twenty-four cases the fasting stomach showed no free hydrochloric acid which might have hastened the secretion, and since in the vast majority of cases the secretory response occurred at the normal time.

The high point of secretion varied from forty-five minutes to two hours and fifteen minutes after the test meal was taken. Since it is not at all unusual to see a difference of 30 or even 50 in acid concentration in a single fifteen minute period, the fallacy of attempting to determine the true secretory state of a stomach by the analysis of a single specimen taken at a fixed time is evident. In the pathologic series there are many curves, showing a normal or hyperacidity at one hour, which at one hour and fifteen minutes or one hour and a half show a marked hyperacidity; consequently it would seem that a hypothesis is erroneous which assumes on the basis of a single one hour analysis that a hyperacidity history with a hypoacidity finding is pathognomonic of an ulcer, since at one hour and a half there may be enough free acid present to cause this picture, especially if the acid is acting on a hypersensitive mucosa.

In eighteen cases of the normal series, the free acid ranged between 20 and 60, with an average of 35½. In one instance the free acid attained a height of 100 without producing symptoms. The height of the total acid curves ranged between 36 and 114, with the greatest number falling between 50 and 80.

An examination of the general character of the secretory curves shows that there is no one form of curve which is common to all normal stomachs, although in general the vast majority of the normal series bore certain similar characteristics. The pause before the evident secretory response, usually occupying the first fifteen to thirty minutes, was followed in most instances by a gradually ascending limb, the total acid curve usually rising first and diverging from the free wave. The summit of the ascending limb most frequently occurred in from seventy-five to ninety minutes. In one half of the series, the summit of the curve was sustained for from thirty minutes to two and one-half and even three hours, while in the other 50 per cent. of cases, a more or less acute summit was followed by relatively short descending limbs which tended to converge. Although we believe that Pawlow, Carlson and others have practically established the fact that normally "the gastric acid, as it flows from the glands, possesses a constant acidity," we do not believe that Rehfuss has substantiated this fact in his experiments. The determining factor as to whether the summit of a curve is sustained or abrupt is entirely dependent on the duration of the balance between the intensity and duration of acid secretion, food fixation and the emptying power of the stomach, and consequently a plateau curve is evidence only of a sustained equilibrium, and is no proof of a secretion of a uniform concentration.

In a number of cases, a temporary secondary rise of the curve took place after the stomach was empty of food, and apparently after the digestive cycle had been completed. This secondary rise usually occurred within the first thirty minutes after the return of the acidity of the secretion to that of the fasting stomach, but it has been noticed as late as one and one-half hours after the apparent completion of the digestive cycle. We attribute this secondary rise, which has been seen so frequently in the normal series, to a fluctuation in the rate of the continued secretion, during the period of cessation following the gastric cycle, rather than to mechanical irritation incident to the presence of the tube.

The motor power as demonstrated by the disappearance of all food particles from the fifteen minute samples was very uniform in the normal series. In twenty of the twenty-four cases, the stomach was empty in from one hour and forty-five minutes to two hours and a half. The emptying time was evidently unaf-

Chart 2.—Two curves from the same stomach, with sixteen days intervening: broken line, total acidity; solid line, free acidity; arrow, empty of food; F. S., fasting stomach.

fected by the duration of the pause before the secretory response, and by high concentration of the hydrochloric acid secretion. In one case in which the secretory response was delayed for one hour, the stomach was empty in two hours, while in another case in which the response occurred during the first fifteen minutes, the stomach was not empty for three hours. In the case in which the free acid attained a height of 100 the stomach was empty of food in two hours and fifteen minutes, showing that a high acid concentration per se in this case at least produced no delay in the emptying time. In only a very few instances did the presence of the tube cause gagging, and in these cases only during the first five or ten minutes, so that motility was probably not reduced by nausea.

The results of second examinations of the content of the same stomachs showed that although a normal

individual will not always give exactly the same curve, the general main characteristics of the curve are identical. The fasting residuum in both analyses gave total and free acidity of almost the same concentrations. The high points of the waves occurred in practically every instance at the same time, were approximately of the same height and were generally of the same character, whether acute, rounded or plateau. The greatest difference in emptying time in the two analyses was forty-five minutes, and this occurred in but one case. The main difference in the contour of the curves was apparently caused by a variable response to the appetite stimulation.

CONCLUSIONS

As the result of this work, we believe that the fractional method of gastric analysis should replace the old tube method.

The true secretory curve of digestion can be determined only if the test meal is introduced into the empty stomach.

A much larger quantity of residuum may be obtained from the symptom-free fasting stomach by the Rehfuss tube than was formerly considered to be within the limits of normal.

The intensity of appetite secretion is variably influenced by the Ewald meal in different normal individuals.

The difference in the time of occurrence of the high point of secretion and the rapidity of the change in acid concentration make it impossible to determine the true secretory state of a stomach other than by the fractional method of analysis.

A plateau type of secretory curve is no proof of the secretion of an acid of uniform concentration.

There is no one form of secretory curve common to all normal stomachs, although the vast majority of normal curves have certain characteristics in common.

The contour of a given normal curve is dependent on the following main factors—the intensity and duration of appetite secretion as influenced by the test meal, the amount of gastric mucus, the concentration of food secretion, and the emptying time of the stomach.

The emptying time of the normal stomach is fairly uniform.

Many phenomena associated with the normal gastric cycle of digestion as determined by the fractional method of analysis have yet to be explained.

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Psychology of the Witness.—The reports of the witness are always combinations of objective and subjective factors. Emotions, decisions, thoughts, may influence his account of the past experience, and, even where the interest is entirely devoted to the external stimuli, the subjective apprehension and attention must play a rôle. It is possible that the original sensory perception was defective; or, secondly, that the apprehension at the time of the perception was erroneous. Thirdly, the disposition for the memory images may have changed in the course of time so that a correct reproduction has become impossible. Fourthly, the will to reproduce the memory ideas may not have been intense enough to overcome suggestions or autosuggestions or to secure completeness. Finally, the witness may have lacked the ability to express his ideas correctly. Only if the process were free from disturbances at all these points can the testimony count as an objective report. Each of these sources of mistakes can be examined by the psychologist. It is clear, however, that three different types of psychological facts must be considered.—Psychology General and Applied, Münsterberg.

LAMINECTOMY WITH SIMPLE EXPOSURE OF THE SPINAL CORD

ITS EFFECT ON THE REFLEXES AND ON THE SYMPTOMS OF SPINAL DISEASE *

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We feel that the time has come for a distinction to be made between those laminectomies in which the operation relieves pressure exerted on the spinal cord, by tumors, by collections of fluid or in other ways, and those in which there are no evidences visible at the operation of any compression of the spinal cord. Hitherto, all such operations have been grouped under the general term of spinal decompression.

In 1912, we published a report of seven cases of spinal disease, in which great improvement followed the removal of the spinous processes and laminae, with incisions of the dura. Since that publication, we have had eight additional cases, and the course in all of them was profoundly influenced by the operative interference. The title of that paper was "Spinal Decompression," but in only two of the cases was any actual increase of intradural pressure found; in these two, we naturally inferred that the improvement which followed the primary operation was due to the relief of intradural pressure after the free removal of spinous processes and laminae, with incision of the dura. The improvement in the others, however, and in eight cases which we have had since, could be attributed to no such cause, for there was no compression of the cord.

The present paper concerns itself exclusively with the cases in which there is no compression and in which the exposure itself is the only agency which can account for the change in the symptoms which so frequently follows the operation. In this paper, therefore, in which we make use for the first time of the title of "Laminectomy with Exposure of the Spinal Cord," we shall limit ourselves to the considerations of the effects of spinal exposure in such cases of spinal disease in which there is no demonstrable increase of intradural pressure.

The postoperative results have been so striking that the conclusion is unavoidable that surgical exposure of the spinal cord, even in the absence of increased intradural pressure, may of itself effect some change on the spinal cord which benefits or checks the symptoms of certain forms of spinal cord disease; and we feel that the procedure merits a name to distinguish it from laminectomies which relieve pressure.

It is not always possible to determine before the exposure is actually made whether or not there is pressure to be relieved. Consequently, the term "laminectomy with exposure" can be used with certainty only after the operation is completed. We have no final physiologic explanation of the phenomena which follow such operations, although we shall suggest certain possibilities.

* Read at the meeting of the American Neurological Association, Washington, D. C., May 9, 1916.

THE IMMEDIATE EFFECT OF LAMINECTOMY AND INCISION OF THE DURA ON THE REFLEXES

As has already been pointed out by one of us,[1] laminectomy and incision of the dura often have an immediate effect on the spinal reflexes. In many cases the knee and ankle jerks become markedly depressed or disappear altogether within thirty minutes of the opening of the dura, and this depression or disappearance of the reflexes may persist for from six to twenty-four hours. These changes often affect all the spinal reflexes, whatever part of the spinal cord may have been exposed by the operation. We have seen the reflexes of both upper and lower extremities modified after an operative interference in the middorsal region, but more often the reflexes below the level of the operative exposure are affected.

These phenomena might be explained by trauma to the cord during the operation or by bleeding into the membranes. But often the diminution or loss of the reflexes occurs when the operation has been very simple without appreciable injury to the cord itself or bleeding into its membranes. Since a similar change in the reflexes may occasionally be observed after simple spinal puncture, it is fair to conclude that changes in intradural pressure conditions with resultant modification of the spinal circulation are the important etiologic factors. We have not observed these changes after operations in which the dural sac remained unopened; but a similar disappearance of the reflexes is often observed after severe trauma to the skull or spinal column.

It is more remarkable that pathologic changes in the reflexes, such as exaggeration of the knee jerks, ankle clonus and the Babinski phenomenon, which had existed, disappear and only the normal reflexes are obtainable for a number of hours or days after an operation on the spine which has consisted of a laminectomy and incision of the dura and at which no definite spinal lesion could be discovered. We have observed these changes in a large number of patients. One of us has performed an exploratory laminectomy in the upper dorsal region on a young woman who had symptoms of disseminated sclerosis with a distinct sensory level. The patient presented, among other physical signs, an inversion of the triceps reflexes, that is, percussion of the triceps muscle was followed by marked flexion at the elbow. After the operation, which failed to show any macroscopic abnormality, the normal triceps reaction (movement of extension at the elbow) returned.

In another patient, in whom the exploration failed to discover any lesion, ankle clonus, and the Babinski, Mendel and Oppenheim phenomena disappeared for thirty-six hours after the operation, during which period the reflexes were normal. We have twice, in cases of suspected multiple sclerosis, seen the abdominal reflexes return for twenty-four hours after an exploration. In one of the patients, horizontal nystagmus, which had existed before the operation, could not be obtained for more than one day after the surgical interference. Similar results have been obtained for motor power.

We recently operated on a man who had a spastic paraplegia of both upper and lower extremities with a marked stiffness of the neck; there were fleeting sensory disturbances affecting mainly the pain and temperature senses up to the level of the sixth cervical segment. In spite of the fact that the diagnosis of multiple sclerosis seemed most probable, an exploration was decided on. The surgical interference failed to demonstrate any macroscopic lesion of the cord, but a decided functional improvement occurred which lasted for almost two months before the former symptoms returned. After the operation, the movements of the neck were much more free. The fingers and the wrists, which before were held stiff and almost motionless, could be moved freely two weeks after the interference. The increase in the strength of both upper limbs was very distinct, and the strength of the hand grips became excellent. The patient was soon able to walk without a cane or other assistance, and whereas formerly he dragged his feet when he walked, he now lifted them quite normally. The spasticity had largely disappeared from the legs, although the knee jerks were still active, and clonus and the Babinski reflex existed. As stated above, the condition of the patient three months after the operation was as bad as before the laminectomy. We have seen this temporary improvement in several patients, and shall keep this patient under continual observation. In another one of our cases (Case 1 following), a second improvement began a few months later, and all of the symptoms of spinal cord disease disappeared within six months.

The exposure of the cord to atmospheric pressure and possibly to light must have a profound effect on the spinal circulation, and as a result, the irritability of the spinal tissue must be greatly modified. There can be no *direct* effect on the reflex centers (nerve cells) in the spinal cord because the changes in the reflexes occur both above and below the part of the cord exposed. For the same reason, the change cannot be due to a direct inhibition of the sensory parts of the reflex mechanisms. We are therefore forced to the hypothesis of an increased inhibition from the brain centers through the pyramidal tracts. This may be due to an increased irritability of the centrifugal fiber tracts. If the reflex stimuli which pass to the cord through the posterior spinal roots were activated and regulated by stimuli from higher centers, it is possible that a loss of such activation or stimulation might diminish the conductivity of the centripetal fibers in the posterior roots, which would then be followed by a diminution in the reflexes. All this is still in the realm of speculation; the problems form a promising field for experimental investigation.

EFFECTS OF LAMINECTOMY WITH INCISION OF THE DURA ON THE SYMPTOMS OF SPINAL DISEASE

In addition to the immediate and temporary modifications in the reflexes and motor power just described, there are other changes which are more permanent, and which we have observed after spinal operations in which nothing was found to explain the symptoms. Either the improvement has been immediate and marked, or an immediate improvement in motor and sensory disturbances was followed, in from one to two days, by a return to the conditions as they existed before the operation but with later gradual improvement; or a change for the better began a few weeks after the operation.

In several of the patients who were markedly improved, the indications for an operation were very indefinite and the operation was performed because

1. Elsberg, C. A.: Tr. New York Neurol. Soc.; Jour. Nerv. and Ment. Dis., 1911, xxxviii, 695.

we had had remarkable experiences in other patients. In several of the patients, satisfactory evidence of a localized lesion was not obtained, and the operator was led to expose the part of the cord which seemed most affected by the disease. Sometimes the operation was performed at the level of the greatest motor disturbance, at other times at the level of most marked sensory loss.

The improvement has generally been gradual, extending over many months or years. Within three months of the operation, we have seen exaggerated knee and ankle jerks return to the normal, and ankle clonus and the Babinski reflex disappear, at the same time that the spastic lower limbs gradually relaxed. In the case of a patient with flaccid paralysis of the lower half of the body and the extremities of three months' duration, improvement began a few weeks after the operation. Within six weeks the knee and ankle jerks had reappeared. Eight months later much power in the limbs had been regained, and the patient was able to walk around with the aid of a cane. The improvement is still continuing.

Reports of three cases, typical of the results we have seen, are given in detail:

REPORTS OF CASES

CASE 1.—(Med. No. 606; Surg., 249).—*Multiple sclerosis? Exploratory laminectomy, negative findings, temporary marked improvement in symptoms; relapse followed by improvement, and finally complete recovery.*[2]

History.—F. L. T., a clerk, aged 26, admitted to the service of Dr. Bailey at the New York Neurological Institute, Sept. 19, 1910, was an athlete, and declared that he had been perfectly well until about three months before admission. Then he began to be unsteady on his feet, and this was soon followed by a numbness in his lower limbs. The symptoms gradually grew worse, and he found that his lower extremities became tired on the least exertion. At times he would have a tingling and burning sensation in his lower limbs. He felt that the limbs were becoming weak and stiff. He was in the hospital for one month during which time he was found to have a spastic paraplegia of the lower extremities without any sensory disturbances. Wassermann tests of the blood and cerebrospinal fluid were negative, and the fluid was normal in all respects. He left the hospital in October, but returned, December 4, with all of the symptoms aggravated. At this time both lower extremities were very spastic, with exaggerated knee and ankle jerks, clonus and Babinski reflex. The abdominal reflexes were wanting. There was now a diminution of sensation up to the level of the twelfth dorsal spine, but tactile sensation was hardly, if at all, affected. After a short stay in the hospital, he again left, only to return, Jan. 8, 1911. The burning sensations in the lower limbs were worse, and were accompanied by shooting pain in the left groin, and the lower limbs were weak and spastic, so that he could hardly drag himself around with help. There was some slight sexual disturbance. The right lower extremity was now weaker than the left; both knee jerks were exaggerated, the right one more than the left. Ankle clonus and the Babinski reflex were elicited on both sides, more marked on the right. The abdominal reflexes could not be obtained. There was a distinct but not well marked diminution of all three sensations below the level of the tenth dorsal segment, but tactile sensation was only very slightly disturbed, while pain and temperature were definitely diminished. The case had been considered one of multiple sclerosis and not one for operative treatment, but the patient urgently requested that no matter how poor the outlook, he be given a chance by operation. This was finally acceded to, and Dr. Elsberg performed a laminectomy, January 20.

2. Reported in part in our previous paper.

Operation.—The spinous processes and laminae of the seventh, eighth, ninth and tenth dorsal vertebrae were removed. Incision of the dura and exploration failed to reveal anything pathologic, excepting for the fact that the cord was of somewhat irregular consistency. The cardiac and respiratory pulsations were normal, and there was no excess of cerebrospinal fluid. All sides of the cord were carefully investigated, but nothing abnormal could be discovered. There were no adhesions between the membranes, and these seemed normal. The wound was closed in the usual manner.

Postoperative History.—Recovery from the operation was without incident excepting for the presence of a very distressing hiccup for a few days. The wound healed by primary union.

One week after the operation, the patient could recognize heat and cold on all parts of both lower limbs, and the hypesthesia and the hypalgesia were much less marked. He was able to move his lower limbs much more freely; a great deal of the spasticity had disappeared. Knee jerks were only slightly exaggerated, and there were no clonus, and no Babinski phenomenon. Three weeks later he could move his lower limbs quite freely, but the spasticity was more marked. When the patient was discharged from the hospital two months later, his condition was the same as before the operation. The lower limbs were again spastic, and he had exaggerated knee jerks, double ankle clonus and Babinski reflex. The abdominal reflexes were present and equal on both sides. Sensation was, however, normal over the entire body excepting for a small area of hypesthesia over the anterior surface of the left thigh and a very slight diminution of pain and temperature sense over the left lower extremity. The sensory disturbances were, however, so slight that their extent could not be determined. The case was now considered one of multiple sclerosis.

For about two months after leaving the hospital, the patient's condition was not much changed. Then improvement began and steadily progressed. Within four months he was practically well, all signs of spasticity had disappeared, and the reflexes in the lower extremities were normal on the right but still slightly exaggerated on the left side. When last seen (April, 1916) he was perfectly well and about to be married.

CASE 2.—*Syphilitic disease of the spinal cord with flaccid paraplegia. Exploratory laminectomy. Very great improvement.*

History.—E. D., aged 50, single, a patient of Dr. James Pedersen, was seen by us in 1914. The patient contracted syphilis in 1896 and was thoroughly treated for two years. In November, 1898, he began to notice a numbness in both lower extremities and began to have difficulty in walking. Intensive antispecific treatment was again begun, and the numbness and weakness in the lower extremities disappeared gradually during the course of three months.

In 1911 he developed diplopia and also began to have some difficulty in walking. The diplopia cleared up after antispecific treatment with salvarsan, mercury and the iodids, but some weakness in the lower extremities persisted. In September, 1914, the left lower extremity became rapidly worse. Two months later both lower limbs were paralyzed, and the patient had lost all control of the bladder and rectum. In spite of most energetic antisyphilitic treatment, the condition became steadily worse. The Wassermann reaction was negative in both blood and cerebrospinal fluid.

Physical Examination.—Nov. 18, 1914, the general condition was good. The cranial nerves and upper extremities were normal. The abdominal reflexes could not be obtained. The cremasteric reflexes were absent. The left lower extremity was completely paralyzed; on the right side, the patient was able to move his toes slightly. Neither knee jerks nor ankle jerks could be elicited. There was no Babinski or other pathologic reflex. There was a very slight disturbance of all three sensations up to the level of the sixth dorsal segment. The sensory loss was nowhere very distinct, but was more so on the right side than on the left, and the pain and temperature were more affected than the tactile sensation. Deep muscle sense was normal. The diagnosis of a localized

degenerative process on a syphilitic basis was made. The patient was informed that the outlook was very poor, but that we had seen beneficial results from decompressive laminectomy in this type of case, and that we considered the operation indicated.

Operation.—The patient was anxious to have everything tried, and after the matter had been explained to him, he asked to have a laminectomy performed. This was done by Dr. Elsberg, Nov. 28, 1914. The spines and laminae of the fourth, fifth, sixth and seventh dorsal vertebrae were removed. On incision of the dura a moderate amount of clear cerebrospinal fluid escaped. The vessels on the posterior surface of the cord were distinctly enlarged. There was no thickening of membranes or adhesion between them, no gross abnormality aside from a slight pinkish discoloration of the cord. The wound was closed in the usual manner.

Postoperative History.—Convalescence from the operation was uneventful. The wound healed by primary union. December 21 (four weeks after the operation), both knee jerks had returned, although they were elicited with difficulty and the right was more lively than the left. The ankle jerks were present and weak, and a Babinski reflex could be obtained on the right side. There had been a considerable return of power in the lower limbs. The patient could flex both lower limbs at the knee, but the left lower extremity was much weaker than the right. Stroking of the abdominal wall elicited distinct abdominal reflexes. Eight weeks after the operation, the patient was so much improved that he could raise both limbs from the bed, but the left limb was much weaker than the right one.

Four months after the operation, the patient was able to stand with assistance. The left knee was still weak, and the patient was given an appropriate brace for support. The power in the right lower extremity was almost normal. The patient now had some control of the vesical and rectal functions. The slight sensory disturbances which had existed before the operation had disappeared, and sensation was normal over all parts of the body.

Ten months after the operation, the patient was able to walk around with assistance. Extension at the left knee was still weak, so that the patient had to continue to wear a brace; but the power in the limb as a whole was much improved. The vesical and rectal functions were normal. The patient declared that he was improving slowly but constantly. His only treatment consisted of massage, electricity and regular exercises.

CASE 3.—*Multiple sclerosis. Exploratory laminectomy; great improvement.*[3]

History.—M. M., aged 30, an Italian, was admitted to the New York Neurological Institute on the service of Dr. Peterson, Dec. 16, 1914. Seven months before, the patient noticed that he was losing control of his bladder and that at times he was incontinent of urine. This was soon followed by constipation and by loss of control of the anal sphincters after taking a laxative. About six months ago, his legs became weak and stiff. The left limb was first affected, but the right leg soon became as bad as the left one. The patient also noticed that he had a numb sensation on some parts of his lower extremities. Walking became increasingly difficult on account of the stiffness of his lower limbs.

Physical Examination.—On admission, the patient presented all the signs of a spastic paraplegia; he was hardly able to drag himself along with the help of two canes. Cranial nerves and upper extremities were normal. The upper abdominal reflexes were present but weak; the lower abdominals and cremasterics could not be obtained. The lower extremities were weak and spastic, the left more than the right. The knee jerks were lively, the left more so than the right; the ankle jerks were lively, the left more than the right; double inexhaustible ankle clonus, and the Babinski and Mendel-Bechterew phenomena were present. There was no loss of deep muscle sense in the lower limbs. Tactile sensation was normal all over the body; there was a distinct diminution of the pain and temperature senses up to the level of the eighth dorsal segment. The disturbance of sensation was most marked over the right lower extremity, and over some areas there was complete analgesia. The sensory disturbance was most marked over the anterior surface of the body.

The Wassermann test and Roentgen-ray examination were negative.

Operation.—December 21, an exploratory laminectomy was performed by Dr. Elsberg. The spines and laminae of the fifth, sixth, seventh and eighth dorsal vertebrae were removed and the dura was incised. There was free escape of cerebrospinal fluid. No macroscopic change in the cord was observed; respiratory and cardiac pulsations were normal; the vessels were normal; there were no adhesions or other abnormality. A probe was passed upward and downward in front of and behind the cord without meeting any obstruction. The dura, muscles, fascia and skin were sutured in the usual manner.

Postoperative History.—Convalescence was uninterrupted; the wound healed by primary union.

January 14, control of the bladder was much improved; the patient had good control in the daytime. Sensation over the limbs was normal. The upper abdominal reflexes were present; the lower right were present and weak; the left could not be obtained. Power of extension and flexion of the lower limbs was now good. The knee jerks were lively and equal; double exhaustible ankle clonus was still present.

March 11, the patient could lift both limbs from the bed equally well. Walked around the ward without any evidence of spastic gait.

From this time on, the improvement was continuous. The patient was presented at the meeting of the New York Neurological Society in February, 1916, as almost well. His gait was normal; the power in the lower limbs was excellent; the reflexes were not exaggerated. The abdominal reflexes were present and equal. The patient stated, however, that he became tired very easily, and that at night he often had trouble with the bladder. He was much satisfied with his walking.

COMMENT

We shall not cite the histories of any other of our patients, but shall make those given above the basis for our comment.

What possible explanation can there be for these remarkable postoperative results? We do not believe that the results were mere coincidences or that in the first patient we had to do with a case of multiple sclerosis in which, coincidently, a latent period of the disease had begun. We have seen the effects described so often among more than 150 operations on the spine performed by one of us, that we have been forced to conclude that there was in our patients a direct connection between the laminectomy and the improvement. We believe it possible that changes in the spinal circulation which follow a laminectomy may have a profound effect on early pathologic changes in the cord, and that the course of a spinal disease may be modified or halted by the operative interference. We have not seen benefit in any patients in whom an exploratory operation exposed the conus and cauda equina. This portion of the cord is very sensitive to changes in pressure, and bladder and rectal symptoms are so apt to occur as complications of the operation that an exploratory operation is justified only when strict indications for it exist. In the cervical and dorsal regions, however, exploratory laminectomy may with less hesitation be performed in selected cases.

CONCLUSIONS

1. The free removal of spinous processes and laminae with opening of the dura, in the absence of increased intradural pressure or a discoverable lesion,

3. We are indebted to Dr. Peterson for permission to report this case.

may be followed by a disappearance of normal cutaneous and tendon reflexes for a number of hours, or may be followed by the temporary return to the normal of pathologic reflexes.

2. The operation of laminectomy may have a profound effect in certain pathologic states of the spinal cord and may so modify or check the disease that a return to normal conditions is even possible.

3. On account of the relative safety of laminectomy in experienced hands, except in the region of the conus and cauda equina, and for the reasons stated above, exploratory operations should be done more often.

TRICHINOSIS AND THE CEREBROSPINAL FLUID

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It is now over two years since I demonstrated for the first time the *Trichina spiralis* in the cerebrospinal fluid, in a patient suffering from trichinosis.[1] I then expressed an opinion that perhaps lumbar puncture may become a useful method for diagnosing this disease. My hopes were fully realized. Before this procedure can be a real factor in the diagnosis of this malady, however, the parasites must be found in the cerebrospinal fluid (1) sufficiently early in the disease and (2) with a fair degree of constancy. My findings of the *Trichina spiralis* in the cerebrospinal fluid have recently been confirmed by Leon Bloch, Young and others. It is noteworthy that in Young's case the parasites were readily demonstrable in the cerebrospinal fluid but not in the muscle tissue.

I wish to add three more cases in which I found the *Trichina spiralis* in the cerebrospinal fluid. I am indebted to Dr. Moshkowitz for the cerebrospinal fluid. The patients were all Italians and ate pork infected with *Trichina spiralis* twenty-one days prior to the lumbar puncture. The cases developed into typical cases of trichinosis and showed the usual subjective and objective symptoms of the disease, including the eosinophilia.

In performing the lumbar puncture every precaution was taken not to introduce into the trochar parasites which may happen to lodge in the muscle of the back. The trochar was introduced with its stilet, and the latter was withdrawn only after the trochar was successfully introduced into the cerebrospinal canal. The cerebrospinal fluid was collected into sterile test tubes.

In appearance the three fluids differed in no wise from that of normal cerebrospinal fluid. They were perfectly clear and contained no sediments. Chemically only one out of the three fluids failed to reduce Benedict's solution; all showed a faint trace of albumin and no increased amount of globulin. The specimens were centrifuged, and the sediments showed but an occasional lymphocyte and from one to four trichinae per field. These embryos were fairly motile and retained this activity to some extent at the end of three days when kept in the cerebrospinal fluid at room temperature. These embryos are not in the least affected when placed in normal urine, and have no effect on red or white blood cells in suspension.

Should the trichinae be found in the cerebrospinal fluid with a fair degree of constancy, this method clinches the diagnosis rapidly, as but few other single procedures do.

1352 Carroll Street.

1. Van Cott, J. M., and Lintz, William: Trichinosis, THE JOURNAL A. M. A., Feb. 28, 1914, p. 680.

A CASE OF TRICHINOSIS WITH EMBRYO IN THE SPINAL FLUID

W. T. CUMMINS, M.D., AND G. R. CARSON, M.D.,
SAN FRANCISCO

History.—G. F., man, aged 39, Greek, laborer, was admitted, Feb. 27, 1916. Family and previous personal history were negligible. January 22 he, together with five associates in the railroad section gang, ate some undercooked pork. The present illness developed thirty-two days later with pains and soreness in the flexor muscles of the arms and the calves of the legs. No history of initial abdominal pains and diarrhea could be elicited. On admission the muscular pains had increased in severity and had involved the muscles of mastication. Moderate frontal headache was present.

Examination.—The patient was well nourished and well-developed. There was no jaundice. Moderate periorbital edema was present. The pupils were normal. The tongue was red, moist and clean. There was slight dulness and roughening of breath sounds at both apexes. The heart and abdomen were normal. The spleen was not enlarged. Pressure over the biceps and leg muscles elicited well marked soreness. Urinalysis revealed specific gravity, 1.024; acid; albumin trace; glucose negative; phosphates, no casts. Blood pressure was 140 mm. systolic, and 90 mm. diastolic.

Treatment and Course.—After two or three days the periorbital edema disappeared, but the muscular pains and soreness increased, now involving the thighs and buttocks. From time to time there was some general abdominal tenderness. There was no diarrhea prior to the administration of purgatives. At the end of the third week after admission the patient was much improved so that there remained only slight tenderness of the biceps, calves and thighs.

Temperature, on admission, was 100.6, and for ten days maintained an average evening reading of 102, when it fell to normal and then maintained an average thereafter of 99. (The maximum temperature was 104.) The pulse was disproportionately low with an average of 95 during the highest temperatures; likewise, respirations, 21.

Castor oil, 2 fluidounces, was given on admission. Calomel and magnesium sulphate were given at intervals of a few days. Salol, 5 grains, was given three times a day. Free catharsis was maintained.

Laboratory Examinations.—The *Trichina spiralis* was not found in the feces on one examination during the period of catharsis and well marked muscular pains. Only venous blood was examined during the fourth week, following the technic of Stäubli, and was negative. At this time several specimens of sedimentized urine were examined and were likewise negative. The parasite was demonstrated in large numbers in the gluteus maximus muscle in the fifth week of the disease when there were definite muscular pains and tenderness.

On admission, the leukocyte count was 10,400, and rose to a maximum of 13,400 three days later. The minimum count was 7,900, six days later. The patient was discharged apparently well after thirty days in the hospital, the eighth week of the disease, with a leukocytosis of 9,600 and eosinophilia of 28 per cent. The maximum eosinophilia was 53 per cent.

The cerebrospinal fluid withdrawn during the fifth week of the disease showed after an exhaustive search of several sedimentized specimens one sluggishly motile embryo of characteristic appearance. Its length was 0.1 mm., breadth, 0.006 mm. The parasite in places appeared finely granular. The oblique, clear band, described by Stäubli, between the anterior quarter and the posterior three quarters was not observed. The motility was a slow, rhythmic bowing of the

entire body with a bending of one end and then the other. The spinal fluid was clear and under a moderately increased pressure. Cells 3; globulin (ammonium sulphate and butyric acid) negative. At this time there was no headache and all reflexes appeared normal. The Kernig sign was negative.

COMMENT

Since in this case at the fifth week there were negative cytologic and chemical findings, and sluggish motility of the parasite, earlier examinations would appear advisable. A routine spinal puncture (unless contraindicated) and neurologic examination of every trichinosis case may reveal much of interest in demonstrating the extent of parasitic migration into a hitherto unexplored field.

Southern Pacific General Hospital.

A CASE OF BETA-EUCAIN POISONING

T. G. ORR, M.D., KANSAS CITY, MO.

The following case is reported from the Surgical Clinic of Dr. M. T. Sudler, in the Bell Hospital, University of Kansas:

A farmer, aged 60, admitted to the hospital for operation for double inguinal hernia and left hydrocele, with negative family history and negative personal history except for occasional palpitation of the heart, had had the left inguinal hernia for twenty-five years, the right hernia for two years, and the left hydrocele for ten years.

The patient was rather heavy, and was healthy looking. There were dilated venules on the face. The right eye was artificial. He had pyorrhea alveolaris. The heart was irregular, with an extrasystole from every three to six beats. The radial vessel walls were palpable. The blood pressure was 160. There was a moderate cloud of albumin in the urine. There were double inguinal hernia and left hydrocele.

On the day after admission, under beta-eucain, 0.25 per cent., anesthesia, the Bassini operation for indirect inguinal hernia and operation for removal of the hydrocele sac were performed. Twenty minutes before operation one-fourth grain of morphin was given hypodermically.

The local anesthetic was administered in the usual way, and the hernia operation completed. When the removal of the hydrocele sac was begun, it was noticed that the patient had begun to perspire freely, and he soon began to complain of being tired. When the patient left the table, at 10:40 a. m., he was perspiring profusely, and the skin had begun to feel clammy. Respirations were now and then sighing in character. The pulse was 88 and weak, the respiration 20 and regular, except for interruptions by sighing. At 11:30 the pulse was 84 and irregular, the respiratory rate slow and irregular. The venules of the face were much engorged. The skin over the entire body was cold and clammy. The pupils were contracted. Five minims of epinephrin chlorid were given in the vein, which caused a transient increase in the strength of the pulse. The patient complained of pain in the head and abdomen. At 12 o'clock it was impossible to feel the pulse, the respirations were of the Cheyne-Stokes type, and at times there were intervals of almost a full minute without breathing. Ten minims of epinephrin were then given, after which the pulse was 60. At 12:45 the pulse was 46. One one-hundredth grain of atropin was then given hypodermically. One thousand cubic centimeters of saline were given intravenously with 15 minims of epinephrin. At 5:30 p. m. the pulse was 46, and the patient's general condition somewhat improved, though he complained of numbness of the left hand and foot. At 7 p. m. he was more comfortable, his pulse 64. At 8:30 p. m. the pulse was 74, the respirations still of the Cheyne-Stokes type, but the period of complete cessation of breathing was not longer than fifteen seconds. At 10 p. m., almost twelve hours after the onset of toxic symptoms, the pulse was 76 and of good quality, and the respirations were 20 and regular. The next day he had apparently completely recovered.

The patient's improvement was uneventful until the fifth day after the operation, when at 2 o'clock in the morning, in the absence of the nurse, he sat up in bed to take a drink of water, and dropped back on his pillow dead. The necropsy showed an embolus in the left coronary artery.

The quantity of beta-eucain used in this case did not exceed 3 ounces of a 0.25 per cent. solution. Three ounces was the quantity placed on the instrument table for use. If all of the solution had been injected into the tissues, the quantity of the drug would amount to 3.4 grains. When waste is considered, it is highly improbable that so much was actually absorbed by the tissues.

Hertzler[1] states that "beta-eucain may be used in quantities up to 3 grains, it is said, and as much as 15 grains have been used without alarming effects." Barker[2] reports the use of as much as 6 ounces of a 0.2 per cent. solution of beta-eucain in a goiter operation without toxic effect. M. T. Sudler has used as much as 5 ounces without causing any symptoms of intoxication.

In a hurried review of the literature, I have found reference to six cases of intoxication due to beta-eucain. Way[3] reports a case of poisoning while doing a circumcision. In his case, less than 2 grains were used. Kraus[4] describes a case of poisoning from injecting 10 c.c. of a 2 per cent. solution into a urethra the day following an internal urethrotomy, which caused very distressing toxic symptoms. In the same article he refers to two cases reported by Marcinowski, one by Dolbeau, and one by Simon. In one of Marcinowski's cases only a transient syncope was noted, and the patient was subject to fainting attacks. In the other case, after injection of 1.5 c.c. of a 10 per cent. solution, the patient exhibited tonic and clonic spasms, which gradually subsided after fifteen minutes, but were followed by stupor and weakness, the symptoms all passing away by the end of six hours. Dolbeau's case was caused by the intravenous injection of the drug. The case reported by Simon was characterized by transient headache and vomiting in a man whose bladder had been filled with 80 c.c. of a 4 per cent. solution for a Bottini operation.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

GLYCOTAURO (See N. N. R., 1916, p. 61).

The following dosage form has been accepted:

Enteric Coated Glycotauro Tablets.—Each tablet contains glycotauro 2 grains and is coated with salol. Prepared by Hynson, Westcott & Co., Baltimore, Md.

PETROAGAR.—Each 100 grams contains petrolatum 0.72, agar 0.22, with powdered licorice, cocoa and oil of anise sufficient to flavor. U. S. trademark applied for.

(Accepted for inclusion with the appendix to New and Nonofficial Remedies.)
Prepared by H. C. Merker Co., Chicago, Ill.

PETROBRAN.—Each 100 grams contains petrolatum 0.74, bran 0.22, with powdered licorice and "oil of pineapple" (ethyl butyrate) sufficient to flavor. U. S. trademark applied for.

(Accepted for inclusion with the appendix to New and Nonofficial Remedies.)
Prepared by H. C. Merker Co., Chicago, Ill.

1. Hertzler: Local Anesthesia.
2. Barker, A. E.: Practitioner, London, September, 1907.
3. Way: Jour. Roy. Army. Med. Corps, August, 1914.
4. Kraus: Deutsch. med. Wchnschr., 1906.

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SATURDAY, JUNE 10, 1916

THE FUNCTION OF THE OMENTUM IN PERITONEAL ABSORPTION

That substances in solution can be absorbed through the direct intermediation of the blood vessels from connective tissue interstices as well as from the larger spaces, such as the pleural and peritoneal cavities, has long been demonstrated beyond a doubt. There was a time when it was assumed with considerable confidence that the drainage from such tissue spaces is essentially a function of the lymphatics arising from them. It shall not be denied that the lymphatic circulation, sometimes even spoken of as the "absorbent system," may take part in this process of absorption. But the process of lymphatic absorption, even when aided by active or passive movements, is a comparatively slow one and will scarcely suffice to explain the rapidity with which a poison in solution can be removed from a tissue space and distributed in the body so as to exert its toxic action after a brief interval. When colored solutions are introduced into the peritoneal cavity, the dyestuff appears in the urine long before a trace of it can be detected in the lymph flowing from the thoracic duct. Absorption and manifestations of the distribution of the substance taken up can be demonstrated even when the lymph is conducted to the exterior of the body or when its channels are obstructed. In all such cases, then, the conclusion seems inevitable that absorption is by the blood vessels, and consists in an interchange between the circulating fluid of the vascular system and the extravascular medium.

It has not been equally easy to explain the removal of particles, such as micro-organisms or foreign precipitated matter, from the larger tissue spaces. Here, at any rate, it has seemed necessary to postulate the prominent cooperation of the lymphatics. Thus studies on the mechanism of removal of granules from the peritoneal cavity have indicated the participation of the diaphragmatic lymphatics as the channel through which suspended particles reach the lymph glands, where they are commonly deposited. The existence of peculiar stomata in the diaphragm has been debated, so that it has been necessary to relate the transport of suspended particles to the activity of migratory macrophages.

Shipley and Cunningham,[1] of the anatomic laboratory at the Johns Hopkins University, have pointed out that the question of the omentum's share in ridding the peritoneal cavity of foreign substances has generally been evaded. They state that those authors who admit the possibilities of the omentum as an absorptive pathway are unanimous in the belief that absorption of granules takes place by way of the omental lymphatics. In the absence of definite knowledge of the facts of the case, they add, such a conclusion as regards the absorption of particulate matter is logical when we consider the part which lymphatic radicles play in the removal of granules from any locality, and the ease with which granular material injected into the peritoneal cavity may be recovered from the lymphatic glands. It is by no means certain, however, that there are any lymphatics in the omentum at all.

It is obviously not easy to establish the special rôle of the omentum as a seat of absorption because of the ease with which foreign matter in solutions and suspensions brought into contact with it can find its way to nearby absorbing surfaces. Shipley and Cunningham have succeeded, however, in conducting experiments satisfactorily by withdrawing the omentum from the body cavity through a midline incision and keeping it immersed, under physiologic conditions, outside of the cavity in fluids which it was desired to study. Possible participation of lymphatics, if such there are, was excluded by ligation of the thoracic duct. Without giving the details of this novel investigation, it can be stated that true and pseudo solutions and granules of particulate material find their way through omental vessels to the organs of the body destined for their ultimate reception and storage or destruction and excretion, and the path by which they leave the omentum is not a lymphatic but a hemic one. The Baltimore investigators further remark that the drainage of particulate matter from the serous cavities by way of the blood stream is most extraordinary, and was most unexpected since the blood vessel wall is not credited with permitting the passage of anything but fluids with a possible exception in the capillaries of the intestinal mucosa. Lymphatic vessels could not be discovered in the omentum; and if they do exist they need play no important part in the actual drainage of the surrounding tissue space. It is confidently believed that a considerable amount of granular material may leave the cavity of the peritoneum through the omental veins, though the limits of granular size and the mechanism of transit have not yet been ascertained.

1. Shipley, P. G., and Cunningham, R. S.: Studies on Absorption from Serous Cavities, I, The Omentum as a Factor in Absorption from the Peritoneal Cavity, Am. Jour. Physiol., 1916, xl, 75.

CHROMOPHIL TISSUE AND EPINEPHRIN

The suprarenal capsules of mammals consist of two parts, the cortex and medulla. With the latter of these structures the presence of epinephrin is associated. There are various other evidences that the cortical and medullary portions of the suprarenals represent distinct tissues differing in function. Portions of the medulla stain darkly with chromates; hence the designation of chromaffin or chromophil substance has been applied to the areas involved. Chromaffin tissue is found in various situations throughout the vertebrate kingdom. In some invertebrates chromaffin nerve cells occur. This has raised the question as to whether the production of the potent epinephrin is a characteristic of chromaffin tissues wherever it may be found, so that the histologic demonstration of the latter would be an indication of the occurrence of a substance having the unique pharmacodynamic action of the "active principle" of the suprarenal medulla.

The evidence of a common origin and similar physiologic effect of such tissues with similar staining reactions is accumulating. In some fishes the two portions of the suprarenal gland remain separated throughout life, the cortex being represented by a series of paired interrenal bodies lying on the front of the spinal column, and the medulla by a number of collections of chromaffin cells lying in close juxtaposition to the spinal nerves. Extracts of these chromaffin tissues behave like those of the suprarenal medulla when they are injected into the blood stream. The same is true of the masses of tissue found in close association with the sympathetic system, which present the chromaffin reaction typical of the medulla.

The most recent investigations in support of the provisional assumption that chromophil tissues are specific in their nature, and everywhere of the same essential character, relate to the retroperitoneal tissues in man and other animals. Fulk and Macleod,[1] of the physiologic laboratory at the Western Reserve University, have repeated earlier experiments of Biedl and Weisel indicative of the presence of an epinephrin-like constituent. By the use of the most recent technic involving the physiologic action of suspected extracts on intestinal and uterine muscle, the pharmacologic identity of the chromophil tissue has been further established.[2]

In view of the apparent connection between chromaffin nerve cells and those of the medulla of the suprarenal bodies, and the relation between the action of epinephrin and that of the sympathetic system, J. F. Gaskell[3] has suggested a possible interrelation. He imagines that the chromaffin nerve cells of the invertebrate are the common ancestors of the epinephrin-secreting chromaffin system and the sympathetic nervous system of the vertebrate. Thus we find the contractile vascular system regulated both by the sympathetic nerves and by the secretion of epinephrin.

1. Fulk, M. E., and Macleod, J. J. R.: Evidence that the Active Principle of the Retro-Peritoneal Chromaphil Tissue Has the Same Physiological Action as the Active Principle of the Suprarenal Glands, Am. Jour. Physiol., 1916, xl, 21.
2. Vincent, Swale: Internal Secretion and the Ductless Glands, London, 1912.
3. Gaskell, J. F.: The Chromaffine System of Annelids, and the Relation of this System to the Contractile Vascular System in the Leech, Phil. Tr. Roy. Soc., London, 1914, ccv (B), 153.

THE NATIONAL DEFENSE BILL AND THE ARMY MEDICAL SERVICE

The national defense bill, signed by the president, June 3, fixes the proportion of medical officers at seven to each thousand of the enlisted strength of the army. This proportion, which existed at the outbreak of the Spanish War and was again restored in 1908, has been seriously reduced through gradual increase of the army, until the enlisted strength had grown 35 per cent. without the addition of a single medical officer.

The new law provides for a definite ratio rather than for a fixed number of medical officers. This will automatically prevent any changes in the ratio in the future. The period of service required of medical officers before promotion to the grade of captain has been increased from three to five years. The medical reserve corps is abolished one year after the passage of the act. Officers of the reserve corps may be appointed to the medical section of the officers' reserve corps, in which body commissions may be issued in three grades — lieutenant, captain and major. Officers of the dental corps are open to promotion to the grades of captain after eight years' service, and to that of major after twenty-four years' service, subject to the same examination conditions as obtain in the medical corps. Veterinary surgeons of the army are formed into a separate corps attached to the medical department, and are given promotion to the grade of major. The hospital corps is hereafter to be known as the enlisted branch of the medical department, and several new grades, such as master hospital sergeant and hospital sergeant, are created. Through a reduction in the proportion of privates first class in this department, the pay of 75 per cent. of the enlisted men in the medical service will be reduced from $18 to $16 a month. As the care of the sick is not particularly attractive work to the ordinary soldier, this reduction will probably increase the difficulty of obtaining recruits of fit character and intelligence for the medical service. The new law does not provide any promotion for medical officers above the grade of colonel, except the single position of Surgeon-General of the Army. Provision is made for the assignment of five officers of the medical corps for duty with the medical relief department of the Red Cross, and the erection of storehouses by the Red Cross on military reservations or the use of government buildings as such storehouses.

The new law is highly satisfactory in that it establishes a permanent ratio between medical men and

enlisted men, provides for an efficient medical reserve, raises the standard of dental and veterinary surgeons, and improves conditions regarding promotion and grade. It is unsatisfactory in that it reduces the pay of enlisted men in the medical corps and so increases the difficulty of securing satisfactory nurses and attendants in military hospitals. This defect, however, can readily be remedied by later amendment.

DIET AND METABOLISM IN CHRONIC INTERSTITIAL NEPHRITIS

It is a significant and fortunate circumstance that increased attention is being directed to the establishment of a rational basis for dietotherapy in many forms of chronic diseases. Customs of feeding and textbook admonitions are handed down from decade to decade, often involving systems or details of diet that are as unnecessary or ineffective as they may be irksome to the patient. A basis for the critical consideration of this has recently been furnished from the medical clinic of the Johns Hopkins Hospital by Mosenthal and Richards.[1] There is much diversity of belief and of practice regarding the amount of protein, and particularly of meat, which may be allowed to the chronic nephritic. In cases of the interstitial type, with which alone we are here concerned, it is frequently stated by clinicians of experience that the danger of the retention of waste products in the organism without elimination by the usual renal channel is always a serious one. Thus Strauss[2] raises the question whether the familiar polyuria is not to be interpreted as an "antiuremic" response, so that the restriction of fluids advocated by some in the management of the disease presents the added danger of intoxication from uneliminated poisons.

As a scientific basis for the supposed perversion of protein metabolism, it has been pointed out that when the food intake and urinary and fecal outputs are carefully measured, a gain of nitrogen to the body is not infrequently discovered. Storage of nitrogen is, of course, not a common or long protracted phenomenon in man except during the period of growth or during the convalescence from depleting disease; yet ordinarily one would hesitate to charge a positive nitrogen balance of this sort in a patient only moderately well nourished to any abnormality of metabolism unless the gain were so large as to become unduly conspicuous. Students of the metabolism of nephritis have nevertheless interpreted positive nitrogen balances in individuals with interstitial disease as indicative of abnormal retention; that is, they have assumed that the kidneys are insufficient and that consequently the urinary nitrogen cannot keep pace with the quantity ingested.

Mosenthal and Richards[1] have put patients with chronic interstitial nephritis of moderate severity on "low protein" diet and subsequently on "high protein" diet in order to control some of the factors just discussed. With daily nitrogen intakes ranging from 16 gm. to as high as 47 gm. they observed a positive nitrogen balance, as other investigators likewise have done. Shall it be assumed from this, as has heretofore usually happened, that the retained nitrogen circulates in the body as nonprotein nitrogen and manifests itself by a rise in its concentration in the blood? Here the newer methods of blood analysis afford a helpful solution to the question. It was calculated that the ingested nitrogen unaccounted for in the excreta would suffice, in the different cases investigated, to raise the nonprotein nitrogen of the blood of these patients to calculated values ranging from 78 to 148 mg. per hundred c.c. of blood; yet the actual values in no instance exceeded 38 mg. Mosenthal and Richards remark that even an extremely large error in their theoretical calculations would not invalidate the conclusion that the retained nitrogen was not circulating as waste nitrogen, but had been assimilated or stored by the body tissues.

A similar storage may occur in normal individuals on a high calory diet. It is therefore misleading to regard these retentions as an index of inability on the part of the kidneys to eliminate nitrogen. If it were such, then there must be compensatory action on the part of some cellular tissue or other which prevents the appearance of the excess in the blood as waste nitrogen. Mosenthal and Richards cautiously conclude that until these phenomena are elucidated, discretion must be exercised in interpreting a normal figure for nonprotein nitrogen of the blood as indicating that no nitrogen retention has taken place; likewise in considering a positive nitrogen balance as an absolute indication of the inability of the kidney to excrete this substance. It is almost needless to add that the ultimate solution of a suitable and theoretically defensible diet in such forms of nephritis must await the answer to the problems of intermediary metabolism which center in the disease. Perhaps one can already foresee a possible outcome in the apparent reaction against a too strict enforcement of the no-meat rule in nephritis.

1. Mosenthal, H. O., and Richards, Annabelle E.: The Interpretation of a Positive Nitrogen Balance in Nephritis, Arch. Int. Med., February, 1916, p. 329.
2. Strauss, H.: Diätbehandlung innerer Krankheiten, Berlin, 1912, p. 136.

Suprarenal Theory of Pellagra.—M. P. Modinos is convinced that pellagra is the result of defective functioning of the endocrine glands, especially the suprarenals. The sympathetic system suffers in consequence, and this might cause all the symptoms of pellagra. He practices in Egypt, where pellagra is not very common. The three cases of pellagra that have come under his charge apparently sustain his assertions, as two of the patients recovered completely under systematic suprarenal treatment. The third patient succumbed to a concomitant liver abscess, and the suprarenals were found double the normal size, hard and purple. His report appeared in the *Bulletins Soc. Méd. des Hôp. de Paris*, April 6, 1916, p. 440.

Current Comment

TRIPLE MERGER OF MEDICAL COLLEGES IN PHILADELPHIA

A noteworthy merger of medical colleges has just taken place in Philadelphia, by which the Medico-Chirurgical College, the Jefferson Medical College and the University of Pennsylvania, School of Medicine, have united to form one larger teaching institution. The Medico-Chirurgical College is to be the graduate school of medicine of the University of Pennsylvania, its corporate title to be "The Medico-Chirurgical College and Hospital, Graduate School in Medicine of the University of Pennsylvania." The Jefferson Medical College and the University of Pennsylvania, School of Medicine, will continue undergraduate medical teaching under a joint title, although retaining their individual identities so far as their properties and endowments are concerned. The union of these three institutions, therefore, will provide not only for the better instruction of undergraduates but also for the development on a high plane of instruction for graduates. The plan under which the Jefferson Medical College and the University of Pennsylvania, School of Medicine, have been merged is given on another page.[1] Since the University of Pennsylvania has recently found it necessary to limit the enrolment of medical students, the union with the Jefferson Medical College is opportune, and will provide the additional teachers, laboratories and clinical material by which larger numbers of medical students can be cared for. This merger provides a single management, a single curriculum and single standards for the admission, promotion and graduation of students. It also permits a single control, and, therefore, a more systematic and efficient use of the abundance of clinical material formerly controlled by three separate institutions. This merger marks a decisive step forward in medical education in this country, and will doubtless point the way to future mergers in other cities.

THE QUESTION OF SECRETORY NERVES FOR THE KIDNEY

The secretory activity of the kidney is so closely bound up with its blood supply, which in turn is so susceptible to regulatory impulses transmitted to it through the vagus or the splanchnic nerves, that the problem of the existence of specific secretory nerves for this organ has not been adequately answered. The vacillating views have been referred to from time to time in THE JOURNAL.[2] The supposedly positive findings were based on the outcome of changes in the water output of the kidneys after experimentation on the vagus and splanchnic innervation. One of these nerve groups was believed to carry secretory, the other inhibitory fibers. The failure to obtain evidence of any increased cellular metabolism which might be indicated in an increased gaseous exchange in the kidney as the result of nerve stimulation has led in turn to doubts regarding the existence of the secretory fibers believed by Asher to exist. A different sort of evidence has been furnished by Quinby[3] of the Johns Hopkins Hospital. By means of vascular suture he has removed the dog's kidney from the body and later restored it to its former position. Such a kidney is removed from the control of the nervous system, for a time at least. Examination of the renal function shows an initial period of overaction, as compared with that of the normal organ. This is followed by a balanced action. Evidence has now been furnished that a single implanted kidney is able to maintain normal life. Though the results throw no direct evidence on any possible secretory function of either the vagus or the splanchnic nerves, they suggest strongly that secretory nerves, if they exist, must play a minor part in renal secretion. No lack of their action is indicated in Quinby's experiments. When it is recalled that the existence of diuretics derived from special tissues in the body has been postulated of late, it becomes probable, quoting Quinby, that vasomotor conditions of the kidney, added to the chemical and hormone action of substances contained in the circulating blood, will be found entirely adequate to explain all the variations and types of normal renal function.

REINFECTION IN SYPHILIS

The question as to the possibility of the occurrence of more than one infection with the *Spirochaeta pallida* has always been a live one. Formerly syphilographers generally believed that cases of reinfection in this disease were exceedingly rare, some going so far as to deny their possibility. With the general adoption of more prolonged and vigorous treatment, however, and particularly with the recent advent of salvarsan, it has seemed probable that these views are subject to modification. The protean aspect of syphilitic lesions always renders their recognition on clinical grounds alone open to considerable question. For this reason the cases reported by some of the older writers, and particularly those occurring in the presence of obvious tertiary lesions, most likely represent recrudescences rather than true reinfections. Lately, however, particularly during the last year or so, many reports have appeared in the literature of apparently well authenticated cases of a second, and a few of even a third and fourth infection. Many of these cases have been studied both parasitologically and serologically. Those patients who give a history of a previous chancre, or have been examined at the time of their infection and have had a positive Wassermann reaction which has disappeared on treatment, who again evince the clinical manifestations of a primary infection in which the *Spirochaeta pallida* is demonstrated, and who subsequently develop a second posi-

1. Medical College Merger in Philadelphia, p. 1881.
2. Do the Kidneys Have Secretory Nerves? editorial, THE JOURNAL A. M. A., Dec. 6, 1913, p. 2073; Secretory Nerves for the Kidney, Dec. 11, 1915, p. 2093. To the literature there referred to may be added: Jost, W.: Die sympathetische Innervation der Niere, Ztschr. f. Biol., 1914, lxiv, 441. Jungmann, P., and Meyer, E.: Experimentelle Untersuchungen über die Abhängigkeit der Nierenfunktion von Nervensystem, Arch. exper. Path. u. Pharmakol., 1913, lxxiii, 49. Rhode, E., and Ellinger, P.: Ueber die Funktion der Nierennerven, Zentralbl. f. Physiol., 1913-1914, xxvii, 12.
3. Quinby, W. C.: The Function of the Kidney When Deprived of Its Nerves, Jour. Exper. Med., 1916, xxiii, 535.

tive Wassermann, apparently present cases of true reinfection. In the absence of an absolute means of determining when a cure is final and complete, however, there is even in some of these cases a possibility that it concerns a recrudescence of a previous infection rather than a reinfection, the weak point in many of the reports being the very short time between the first and second infections. Nevertheless the repeated occurrence of such cases tends to indicate that the present methods of treatment, if accurately carried out, are capable of eradicating syphilitic infection, and from this point of view true syphilitic reinfection may be regarded as encouraging evidence of the efficacy of the treatment.

COTTAGE SCHOOLS

The *Weekly Bulletin* of the New York City Department of Health calls attention to an article by Todd[1] urging the replacement of the present style of "tenement" schools by buildings erected on the cottage plan. In favor of this plan is the reduction of risk from infectious disease, particularly so far as such risk is due to the mingling of children from different rooms in the halls of the large buildings. Todd considers the ground necessary for the cottage school plan one of its chief assets. Much is to be said in favor of the idea that school buildings are a poor financial investment and that a simpler and cheaper as well as more hygienic style of construction would be preferable. The one story cottage school almost entirely eliminates danger from fire, especially when proper material is used in its construction. The elimination of stairs and basement increases sanitary merits and decreases the cost of construction. The elimination of elaborate and expensive ventilating systems also cuts down operating cost.

FRAUDULENT ADVERTISING IN THE DISTRICT OF COLUMBIA

Congress prohibits fraudulent advertising in the District of Columbia. Why not within the entire federal jurisdiction? Congress has passed a bill, which was signed, May 29, by the president, prohibiting "fraudulent" advertising in the District of Columbia. By this act it is made unlawful to display or exhibit to the public in any manner whatever, whether by handbill, placard, poster, picture, film or otherwise; or to insert or to cause to be inserted in any newspaper, magazine or other publication printed in the District of Columbia; or to issue, exhibit or in any way distribute or disseminate to the public; or to deliver, exhibit, mail or send to any person, firm, association or corporation any false, untrue or misleading statement, representation or advertisement, with intent to sell, barter or exchange any goods, wares or anything of value. The act further prohibits the use of any of the methods of advertising described above with the intent or purpose to deceive, mislead or induce any person, firm or corporation into employing the services of the advertiser. The House of Representatives committee report on the bill expressly states that it is designed, among other things, to prevent quack doctors and fake dentists from advertising their fraudulent nostrums, impossible methods and alleged results. If the president and Congress agree that a law to prevent fraudulent advertising is a good thing for the District of Columbia, will they not agree that a similar law would be equally good for interstate and foreign commerce and for the purification of the United States mails?

1. Todd: School and Society, iii, 617.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ILLINOIS

Personal.—Dr. Frank A. Stubblefield has been transferred from the staff of the Alton State Hospital to that of the State Hospital for the Criminal Insane, Chester. He has been succeeded at Alton by Dr. Van Pelt.

Typhoid Dangers.—The state board of health reports that Pana, Christian County, and Tuscola, Douglas County, are menaced by an epidemic of typhoid. At Pana there are thirty-eight clearly defined cases of the disease and at Tuscola fifteen cases have been reported. Sanitary inspectors are at work endeavoring to ascertain the cause of the epidemic.

Chicago

Memorial for Dr. Favill.—A committee has been organized to establish a memorial to Henry Baird Favill under the auspices of the City Club and Commercial Club. Drs. Frank Billings and Emilius C. Dudley are the medical members of this committee, which hopes to receive subscriptions amounting to $250,000.

Surgical Society Election.—At the annual meeting of the Chicago Surgical Society, June 2, the following officers were elected: president, Dr. William M. Harsa; vice president, Dr. William Fuller; secretary, Dr. Kellogg Speed, and treasurer, Dr. Frederick G. Dyas.

Mercy Hospital Wing Completed.—The completion of the new $300,000 addition to Mercy Hospital was announced, June 4, and the formal opening of the building will take place June 15. The new building is four stories in height, and is designed especially for the care of sick children. The outstanding indebtedness of the institution now amounts to more than $200,000, and the opening of the building will mark the beginning of a campaign to raise funds to wipe out this deficit.

MARYLAND

Transfer of Quarantine.—An ordinance authorizing the transfer of quarantine from the city of Baltimore to the federal government was introduced in the second branch of the Baltimore city council, May 22, and was referred to the committee on health.

Survey at Frederick.—A medical survey of Frederick is being made by officials of the United States Public Health Service, working in cooperation with the Franklin County officials, the secretary of the state board of health and Dr. William W. Ford, professor of bacteriology in Johns Hopkins University.

University of Maryland Alumni and Graduation Banquet.—The first alumni and graduation banquet of the medical and the general alumni association of the University of Maryland was held, May 31, at the Emerson, and was attended by over 500 alumni and graduates. The following officers of the general alumni were elected: president, E. John W. Revell; vice president, Dr. Albert H. Carroll; treasurer, William Stichel; recording secretary, Dr. F. V. Rhodes; corresponding secretary, Edward P. Crummer; and advisory council, medical, Drs. Charles E. Sadtler, Arthur M. Shipley and James M. H. Rowland.

Personal.—Dr. Eugene W. Heyde, Parkton, has been appointed one of the health officers of Baltimore County to fill the vacancy caused by the death of Dr. Joseph S. Baldwin,

Freeland.——The police commissioners have elected the following physicians as surgeons to the board: Dr. Caleb N. Athey, president, and Drs. James M. Craighill, William S. Gilroy, Thomas P. McCormick and Elliott H. Hutchins.——Dr. Phillip Briesoe, Mutual, has been reappointed a member of the Board of State Aid and Charities by the governor.——Dr. Bowers H. Growt gave a reception to the members of the faculty and fifty-four members of the graduating class of the University of Maryland Medical School recently at his home.

MICHIGAN

Sterilization Law Ruled Unlawful.—Probate Judge Daniel Zuhlke Lapeer has declared unconstitutional the act of the legislature of 1913 which permits sterilization of inmates of state institutions. The state started the action in order to test the constitutionality of the law and the decision will be appealed.

Personal.—Dr. C. Hollister Judd, Detroit, has been elected chief of the medical staff of the Florence Crittenton Home, Detroit.——Dr. Frank B. Walker, Detroit, addressed the Kalamazoo Academy of Medicine, May 9, on "Fractures of the Base of the Skull." At the same meeting Dr. Archibald D. McAlpine, Detroit, read a paper on "Lung Abscess."——Dr. James C. Martin has been reelected health officer of Highland Park, Detroit.

MINNESOTA

Health Survey of St. Paul.—Surg. George B. Young, U. S. P. H. S., has taken active charge of the sanitary survey of St. Paul. The survey will occupy about three weeks, and is undertaken in cooperation with the heads of the state and municipal health departments.

Hospital Notes.—The new hospital of the Franciscan Sisters at Kettle Falls is now completed and the formal dedication exercises will occur June 15.——It is proposed to double the capacity of St. Luke's Hospital, Duluth, and to build a modern home for nurses at a cost of $125,000.

Pathologists Elect Officers.—At the annual meeting of the Minnesota Pathological Society in Minneapolis, May 23, Dr. Arnold Schwyzer, St. Paul, the retiring president, delivered the annual address, and the following officers were elected: president, Dr. Winford P. Larson, University of Minnesota, Minneapolis; vice president, Dr. John L. Rothrock, St. Paul; secretary-treasurer, Dr. Frederick L. Adair, Minneapolis (reelected), and councilor, Dr. Alexander R. Colvin, St. Paul.

NEW JERSEY

State Association Meeting.—The Medical Society of New Jersey has arranged to celebrate its one hundred and fiftieth anniversary at Asbury Park, June 20 to 22. Headquarters will be at the New Monterey Hotel. Dr. William J. Chandler, South Orange, is president of the organization.

Medical Inspector's Association Meets.—At a meeting of the New Jersey State Association for Medical Inspection and School Hygiene, held in Newark, May 20, Dr. Dana, Camden, was elected president; Dr. Fred M. Corwin, Bayonne, vice president, and Dr. Webber, Hoboken, secretary-treasurer.

Personal.—Dr. Charles S. Pancoast, Camden and Philadelphia, has returned after several months in hospitals in Hungary and Bulgaria.——Dr. Edwin H. Coward, health director of Atlantic City, has resigned.——Dr. Anthony Bassler has been appointed consulting gastro-enterologist to Christ Hospital, Jersey City.——Dr. Theodore J. Jacquemin, West Hoboken, has disposed of his property and has moved to California.——Dr. James K. Stoddard, Mount Holly, has gone to France to engage in hospital work in the war zone.——Dr. Bernard R. Lee, Atlantic City, suffered a fracture of the arm and other injuries in a collision between automobiles recently.

NEW YORK

Public Health Laboratory.—Governor Whitman signed the appropriation bill, May 27, which includes a construction item of $65,000 for the purchase of land and erection of a laboratory building in the city of Albany for the state department of health. The building will be located in the new Scotland Avenue section of the city.

The Prevention of Blindness.—The New York State Commission for the Blind has inaugurated a program and policy for the prevention of blindness. It announces that appointment of an advisory council, to which shall be referred all matters pertaining to the policy of the commission's work in prevention. The members of this council are: Dr. Linsly R. Williams, Albany, deputy commissioner, state department of health; Dr. Haven Emerson, commissioner, city department of health; Dr. Wilbur B. Marple, Dr. John E. Weeks, Dr. Alexander Duane, Dr. Herbert W. Wootton and Dr. Colman W. Cutler, all of New York. Very effective and compact exhibits in ophthalmia neonatorum, wood alcohol poisoning, midwives and trachoma have been prepared, and will be loaned by the commission for the use of local boards of health, civic organizations, clubs, or individuals interested and may be obtained by addressing the Secretary, New York State Committee for the Prevention of Blindness, 130 East Twenty-Second Street, New York.

New York City

Straus Milk Stations Open.—Nathan Straus opened ten infant milk depots, June 1, in addition to the eight that he maintains throughout the year. This makes the twenty-fifth year of his work of providing pasteurized milk in the parks and on the recreation piers for the poor children of the city.

New Hospital Building.—The directors of this institution recently announced that a new hospital building for Har Moriah Hospital will be erected south of Fourteenth Street and east of the Bowery. The new building is to cost $400,000, of which $50,000 is already in hand, and $50,000 more has been promised by an anonymous donor.

Proprietary Medicines.—*Bulletin 21* of the department of health states that since the ordinance has gone into effect requiring that all proprietary medicines shall either bear on their labels the name of the active ingredients or have them deposited in the confidential keeping of the health department, 3,197 preparations of this type have been registered with the department of health by 856 manufacturers.

Women Doctors Dine.—The alumnae association of the New York Medical College and Hospital for Women held its annual dinner at the Hotel Savoy on the evening of June 2. Twelve graduates of the class of 1916 were present. A silver loving cup was presented to Dr. Sidney Freeman Wilcox, who has been for twenty-five years professor of surgery in the college. It was announced that $62,000 has been received for the equipment of a new building for the college and hospital. Mrs. C. A. Wentworth and Mrs. W. S. Gray have each given $5,000 to endow a bed.

NORTH CAROLINA

Health of Winston-Salem.—Prof. Charles Wardell Stiles, U. S. P. H. S., has completed the sanitary survey of Winston-Salem.——Dr. Joseph J. Kinyoun, Washington, D. C., has accepted the position as whole-time health officer of the city, succeeding Dr. Eugene P. Gray, resigned.

News About Sanatoriums.—A tuberculosis sanatorium for colored people of Durham is to be established by the Civic League. The institution will be able to care for ten patients.——A sanatorium for Guilford County seems assured, as Mr. Caesar Cone, Greensboro, proposes to contribute $10,000 of the $30,000 needed; the King's Daughters have offered a site valued at $3,500, and one donation of $250 in cash has already been received.

Hospital Items.—A new hospital was opened in Goldsboro last month under the charge of Dr. John Rainey Parker.——The contract for the annex to the James Walker Memorial Hospital, Wilmington, has been awarded to the Northeastern Construction Company of New York.——The trustees of the Old Ladies' Home, Belmont, have offered to turn over its property to the city to be used as a charity hospital. The property will cost the city $9,825.

PENNSYLVANIA

Antispitting Signs.—At the suggestion of Dr. George J. Van Vechten, superintendent of the bureau of health of Scranton, 500 blue and white enamel signs, 6 by 8 inches in size, and calling attention to the prohibition of spitting on sidewalks or public places, are being posted throughout the city.

Personal.—Dr. Daniel A. Webb, Scranton, has arrived in Liverpool on his way to the war zone.——Dr. Theodore C. Harter, Bloomsburg, is a candidate for the Democratic nomination for Congress.——Dr. Daniel P. Gerberich, Lebanon, who has been a member of the state senate since 1904, has resigned his seat on account of ill health.——Dr. Daniel A. Webb, Scranton, left for Nova Scotia, April 13, to join the medical staff of the Eighty-Fifth Highlanders.

State Takes Charge of Health Affairs.—On account, it is said, of the inactivity and indifference of the health boards in five municipalties of Mercer County, they have been ordered discontinued, and the state is reported to have taken active

charge of the affairs. The boroughs affected are Fredonia, Sheakleyville, Jackson Center, New Lebanon and Clarksville. ——The state department of health took charge, May 22, of the administration of health affairs in Jennertown, Cassellman and New Baltimore, Somerset County, and Sistersville, Westmoreland County.

New Obstetric Test Demanded.—The following resolution was passed by the Bureau of Medical Education and Licensure of Pennsylvania at a recent meeting: "Resolved, that candidates for examination who graduate after Jan. 1, 1917, must produce evidence that, prior to graduation from a medical school, they have attended personally not less than twelve cases of obstetrics." This raises the standard of teaching of obstetrics in Pennsylvania from a minimum of six cases to a minimum of twelve cases prior to graduation with an additional minimum of six cases in the hospital in the hospital internship prior to licensure. This practically insures that each applicant for the medical examinations of Pennsylvania has had twenty-five or more cases of obstetrics prior to licensure.

Philadelphia

Officers Elected.—At the annual meeting of the alumnae association of the Women's Medical College of Pennsylvania, June 2, the following officers were elected for the ensuing year: president, Dr. Frances VanGasken; vice presidents, Drs. Martha Tracy and Lida Stewart Cogill; recording secretary, Dr. M. Taylor; corresponding secretary, Dr. Caroline Croasdale, and treasurer, Dr. Ellen C. Potter. Dr. Clara Marshall, dean of the college, announced a plan for increased endowment.

Personal.—Dr. Archibald G. Thomson is seriously ill in the Jefferson Hospital.——Dr. J. Torrence Rugh delivered an address before the graduating class of the Nurses' Training School of the Methodist Hospital, June 1.——Mr. William H. Hachenburg was elected president of the Jewish Hospital Association at the annual meeting, May 28. This is his fortieth year as president and his fifty-second year as a member of the executive committee.——The National Board of Medical Examiners has elected Dr. J. S. Rodman, permanent secretary, and has decided to hold its first examination in Washington, D. C., beginning October 16.

Jefferson Alumni Banquet.—The annual banquet of the Alumni Association of the Jefferson Medical College was held at the Bellevue-Stratford, Friday evening, June 2. Dr. B. Franklin Royer, president of the association, was the toastmaster and the speakers were Mr. Alba Johnson of the board of trustees; Dr. Wilmer Krusen, director of public health and charities; Dr. Edward P. Davis and Dr. William Westcott. At the business meeting held in the morning, the following officers were elected: president, Dr. J. Coles Brick; vice presidents, Drs. E. Q. Thornton and P. Brooke Bland; treasurer, Dr. Warren B. Davis, and recording secretary, Dr. H. K. Mohler.

Endowment for Jefferson.—Jefferson Medical College is now 90 years old, and has been a chartered university since 1838. It has graduated 13,278 physicians, of whom 4,678 are in active practice. Last session 676 students were enrolled. The real estate and the equipment are valued at over $2,000,000. A movement has been inaugurated to secure, as soon as possible, at least $2,000,000 additional endowment for the college. Mr. Daniel Baugh, a member of the board of trustees, and founder of the Daniel Baugh Institute of Anatomy and Biology, has subscribed $100,000, provided an equal amount is raised on or before June 16 next. The money so obtained goes to permanent endowment; the income alone will be used for such purposes as the trustees may from time to time designate. Only $20,000 remains to be raised and alumni are urged to subscribe.

Dispensary Dedicated.—June 1, a granite dispensary building opened a few weeks ago at Seventeenth and Summer Streets by the Philadelphia Orthopaedic Hospital and Infirmary for Nervous Diseases was dedicated to the memory of the late Dr. S. Weir Mitchell, who was one of the founders and for many years head of the staff. A dedication address was made by Dr. William W. Keen. Attached to the front of the dispensary is a stone tablet on which is inscribed in bronze, "S. Weir Mitchell Memorial, Philadelphia Orthopaedic Hospital and Infirmary for Nervous Diseases, 1915." Another tablet in bronze in the main waiting room contains the following legend: "This Building is Dedicated by His Friends and Patients in Memory of S. Weir Mitchell, Founder, Physician, Consultant, Manager, 1872-1914. Through these successive offices during forty-two years he gave to the sufferers within the hospital, learning, wisdom, tenderness, to ease their pain, to hearten the discouraged, to lighten their burden."

VIRGINIA

Health Bulletin.—The state board of health has distributed to the farms of Virginia a bulletin entitled "Farm Health Insurance" which explains the prevention of the common diseases of summer, and shows how farms can be made hygienic and flies abolished.

Personal.—Dr. Stuart McGuire was awarded the degree of LL.D. by Greater Richmond College at its closing exercises, June 7.——Drs. John B. Halligan, Smoky Ordinary, and William C. Powell have been elected city physicians of Petersburg, succeeding Drs. W. Preston Hoy and Claiborne T. Jones, resigned.

State Public Health Officers Meet.—At the annual meeting of the Virginia Public Health Association, held at Newport News, May 9 and 10, the following officers were elected: president, Dr. Ennion G. Williams, Richmond; vice presidents, Drs. C. Curtis Hudson, Danville, and W. H. Hick, University of Virginia; secretary-treasurer, Dr. W. Brownley Foster, Roanoke, and assistant, Dr. Roy K. Flannagan, Richmond. The principal address of the meeting was delivered by Asst. Surg.-Gen. Henry R. Carter, U. S. P. H. S., on "The Control of Malaria."

WASHINGTON

Antituberculosis League Consolidated.—At a joint meeting of the Antituberculosis League and the Red Cross Seals Bureau in Seattle, the two bodies were consolidated and Surg. Bolivar J. Lloyd, U. S. P. H. S., was elected president, and Dr. James E. Crichton, vice president.

Board on Medical Education.—At a meeting of the regents of the University of Washington, held in Seattle, the following advisory board on medical education, as related to the university, was appointed: Drs. Frederick Epplen and Wilson R. Johnston, Spokane; Dr. Cornelius J. Lynch, North Yakima; Dr. John R. Brown, Tacoma, and Drs. James B. Eagleson, Clarence A. Smith, Donald A. Nicholson, Curtis H. Thomson and Don H. Palmer, Seattle.

Personal.—Dr. Edward A. Rich has been appointed health officer of Tacoma, succeeding Dr. Edwin A. Montague, resigned.——Dr. Henri L. Petit, Chehalis, has been appointed local surgeon for the Milwaukee System.——Dr. Spiro F. Sargentich, Tacoma, who has recently returned from Serbia, was the guest of honor at a dinner given by Dr. James R. Yocom. After dinner he entertained the guests with stories of his experiences during the invasion of Serbia.——Dr. Edgar C. Lee, Seattle, has returned after Red Cross work in France.——Dr. E. Clements Leach has resigned as a member of the staff of the Seattle City Hospital and will practice in Mount Vernon.

WISCONSIN

Sanatorium Project Fails.—The Tri-County Tuberculosis Sanatorium scheme undertaken by Waukesha, Walworth and Jefferson counties has met with a serious check, as Jefferson County has turned down the project completely and Walworth County has postponed action until its November meeting. The Waukesha County Board, a short time ago, voted to bond the county for $50,000 in support of the sanatorium plan if the other counties agreed.

Clinical Tuberculosis Meeting.—The Wisconsin State Medical Society with other medical and surgical organizations of the state, and the Wisconsin Antituberculosis Society, held a clinical tuberculosis meeting in Milwaukee, June 6 to 10. On the first day a public meeting was held at which Dr. Francis M. Pottenger, Monrovia, Calif., delivered an address on "Tuberculosis, a Curable Disease." On Wednesday morning there was a clinical demonstration of diagnosis of tuberculosis at the Children's Dispensary and Hospital by Dr. Pottenger and others. At the same time there was a demonstration of surgical cases at the Children's Hospital. At noon automobiles were provided to transport the visitors to Muirdale Sanatorium, where they were the guests at luncheon of Dr. Glenford L. Bellis. Wednesday afternoon there was a physical diagnosis clinic of tuberculosis by Dr. Pottenger, checked by the Roentgen ray under the direction of Dr. E. H. Skinner, Kansas City, Mo. On Wednesday evening the dinner of the Milwaukee County Medical Society occurred, and on the three following days there were demonstrations of the diagnosis of tuberculosis and various medical and surgical tuberculosis clinics.

CANADA

Ontario Health Officers Meet.—The medical officers of health in Ontario met in annual session on May 30 and 31. In the absence of the president, Capt. Angus W. McPherson, Peterborough, in France, Dr. A. J. Macauley, Peterborough, presided. Dr. William H. Park, director of laboratories of New York, gave an address on the work of his department in reducing the death rate among children from diphtheria. A very spirited debate was launched on the question, Should the Breadwinner be Quarantined? Dr. George R. Cruickshanks, Windsor, discussed removal of tonsils. Maj. William D. Sharpe, Brampton, and Capt. Ruggles George, Toronto, the former from Serbia and the latter from France, gave some interesting details of sanitation in war time. Dr. Alan G. Brown of the Sick Children's Hospital, Toronto, advocated separate hospitals for children with tuberculosis. Dr. Kidd, Lambton, stated that 40 per cent. of the milch cows in Ontario were tuberculous. The following officers were elected: president, Dr. A. W. McPherson, Peterborough; vice president, Dr. Thomas A. Vardon, Galt, and secretary, Maj. John W. S. McCullough, Toronto. The next conference will be held in Toronto, May, 1917.

Personal.—Hon. Dr. Beland, M.P., ex-postmaster general of Canada, has been released by Germany as a prisoner of war. At the outbreak of the war Dr. Beland was in Belgium, where he had just been married. He immediately volunteered for service in the Belgian Army Medical Corps. He was taken prisoner at the capture of Antwerp. It is understood Dr. Beland has journeyed to Holland, where his wife has been ill for some months, and that he will return to Canada as soon as her health warrants the journey being undertaken. ——Lieut.-Col. John Taylor Fotheringham, Toronto, medical officer with the second Canadian Overseas Force in France, has been created a Commander of the Order of St. Michael and St. George.——Dr. Frederick Montizambert, director-general of public health, Ottawa, Ont., is listed among the recipients of King's birthday honors, having been created a C. M. G.——Lieut.-Col. Robert D. Rudolf, Toronto, who has been on active service since the outbreak of the war, has returned to Toronto. Leave has been granted him to remain for the present in Toronto so that his war experience may be of service to the University of Toronto during its summer session in medicine.——Dr. Norman K. Wilson, Toronto, who went through the Dardanelles campaign, has been appointed chief of the nose and throat department of the Ontario Military Hospital, England, with the rank of major. ——Dr. Edna Guest, whose home is at Lucan, Ont., is the first Canadian woman physician to receive a government military appointment since the outbreak of the war. She has been appointed by the War Office to a post in the Northamptonshire War Hospital at Duston, with the rank of captain.——Dr. Honoria Keer, who is now in Corsica with 6,000 Serbian refugees, was born in Toronto, but is a graduate of the University of Glasgow. Dr. Keer first worked in Serbia and for a time at Saloniki.——Lieut.-Col. Thomas Bedford Richardson, Toronto, who has been commandant of the hospital at Exhibition Camp, Toronto, has been appointed commandant of the new Convalescent Hospital in that city which is located in the building of the old Toronto General Hospital.——Dr. N. M. Keith, Montreal, has left that city to serve with the Harvard Medical Unit in the British Army Medical Service, and will shortly sail for England.——Dr. John L. Chabot, M.P., Ottawa, Ont., is to accompany the detachment of members of the Canadian and other overseas dominions' parliaments on a visit to the trenches in France.

GENERAL

Definitions and Standards for Milk and Milk Products.—The United States Department of Agriculture will give a public hearing in Chicago, June 13 and 14, on definitions and standards for milk, cream, condensed milk, and other milk products.

Growth of Red Cross.—The campaign to increase the membership of the American Red Cross to 100,000, which was inaugurated a few weeks ago, has been successful, and the membership has now passed the desired mark and the campaign is still going on.

The Fight Against Cancer.—The American Society for the Control of Cancer, which is directing a nation-wide campaign of education in this regard, notes the publication by the Central Midwives Board of England of a new circular on "Cancer of the Breast," prepared by Sir Francis H. Champneys, F.R.C.P., chairman, which has been distributed to the public as well as to the midwives. In this he urges the prompt and early treatment of all lumps in the breast.

Wine of Cardui Suit.—During the week ending at the time of going to press the attorneys for the plaintiff—The Chattanooga Medicine Co.—have read numerous depositions from Southern doctors and others, and have presented impeachment witnesses to contradict testimony given by witnesses for the defendants. Dr. Thomas G. Atkinson, Chicago, testified as an expert. The attorneys for the plaintiff announced that they expect to close their case by noon Thursday, June 8.

Railway Surgeons Organize.—The first annual meeting of the local surgeons of the Pere Marquette Railroad Company was held in Grand Rapids, May 24, under the presidency of Dr. Frederick C. Warnshuis, Grand Rapids, chief surgeon of the company. The following officers were elected: president, Dr. Virgil L. Tupper, Bay City, Mich.; vice presidents, Drs. John J. Reycraft, Petoskey, Mich., and Alexander J. Turner, St. Thomas, Ont., and secretary-treasurer, Dr. Lewis S. Ramsdell, Manistee, Mich. The association decided to hold meetings semiannually.

Procedure for Admission to the Government Hospital for the Insane to be Changed.—A bill has been introduced into Congress to authorize the admission of insane residents of the District of Columbia and of other insane persons found in the District to the Government Hospital for the Insane, without trial by jury as now required by law. If a person committed without a jury trial, or any relative or friend in his behalf, is dissatisfied with the order of commitment, he may within ten days appeal, and thereupon a jury must be summoned and the case tried by jury. The court is not to require the presence of the alleged insane person at the hearing unless for good reason it shall so direct.

Aid for Belgian Physicians.—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession shows no contributions for the month of May, 1916.

Previously reported receipts	$7,941.86
Previously reported disbursements:	
1,625 standard boxes of food at $2.20	$3,575.00
1,274 standard boxes of food at 2.30	2,930.20
353 standard boxes of food at 2.28	804.84
Total disbursements	7,310.04
Balance	$ 631.82

F. F. SIMPSON, M.D., treasurer,
5 Jenkins Arcade Building, Pittsburgh.

Examination for Clinical Director.—The United States Civil Service Commission announces an open competitive examination for clinical director at the Government Hospital for the Insane, Washington, D. C., June 27. The salary is $2,000 a year with maintenance. Applicants must be graduates of medical schools of recognized standing; must have been in actual charge of the medical service of an institution for the insane for at least five years; must have received special training in psychiatry, and must have contributed to the medical literature on the general subject of insanity, or by report of cases; must be 35 years of age or over, and applications must be filed with the commission at Washington prior to June 27.

National Leprosarium Bill.—The House of Representatives, May 4, passed House Bill No. 193 providing for "the care and treatment of persons afflicted with leprosy and to prevent the spread of leprosy in the United States." The bill provides $250,000 for the preparation of a home for lepers, including the erection of necessary buildings, the maintenance of the patients, and the pay and maintenance of the necessary officers and employees until June 30, 1917. The bill further suggests that "any abandoned military, naval or other reservation suitable for the purpose, or as much of it as may be necessary, with all buildings and improvements thereon, be transferred to the secretary of the treasury for the purpose of said home or homes."

Examinations for Army Medical Corps.—Preliminary examinations for admission to the Army Medical Corps to fill more than 100 vacancies will be held July 17 and August 14. Applicants must be between 22 and 30 years of age, graduates of reputable medical colleges and must have had at least one year's experience as intern after graduation. Applicants successful in the preliminary examination to take a course of training at the Army Medical School, Washington, for eight months, during this time receiving the pay and allowance of a second lieutenant, which amounts to about $215 a month. Before entering the school the candidate must agree, if commissioned, to serve at least five years in the Medical Corps. At the termination of the course at the school, he is assigned to duty at a military post. Medical officers are furnished with best of current medical periodicals, recent books, ample equip-

ment for service and the laboratories at military posts are equipped for research work.

Warning.—It is reported that a young man is calling on physicians in various parts of the country, giving the names: L. D. Grant, H. E. Peters, R. A. Douglass or F. C. Schneider; and soliciting orders for subscriptions to medical journals and for medical books, for which he is not an authorized agent. He is slender, dark, with dark hair combed straight back, and he shows his teeth plainly when talking. He gives a receipt bearing the heading of some society or association such as the United Students' Aid Society, the Alumni Educational League or the American Association for Education. He represents himself as a student working his way through college and trying to get a number of votes to help him win a certain contest. The societies mentioned do not exist, and physicians should be on the lookout for him. When last heard from he was in Omaha and is believed to be working his way westward.

Bequests and Donations.—The following bequests and donations have recently been announced:

Home for Consumptives, Brooklyn; Home for Incurables, Brooklyn; Home for the Blind, Brooklyn, each $10,000; German Hospital, New York; Long Island College Hospital, Brooklyn, and St. John's Hospital, each $5,000.

Negro Hospital, Little Rock, Ark., a donation of $1,000, contingent on the subscription of a sufficient sum of money for reopening and maintenance.

University of Pennsylvania for the establishment and permanent endowment of a professorship of surgical research, $150,000 as a trust fund; Drs. William J. Mayo and Charles H. Mayo, Rochester, Minn., $10,000, by the will of Dr. J. William White.

Visiting Nurses Service of the Henry Street Settlement, New York, a donation of $100,000 for endowment, by Mrs. Elisabeth Milbank Anderson.

Asheville (N. C.) Mission Hospital, $10,000, to endow a bed in memory of Edwin Hayden Herrick, and $10,000 for the maintenance of a free bed or beds in memory of Leroy Herrick, by the will of Mrs. Jeanette H. Francis of Hampshire County, Mass.

Allentown (Pa.) Hospital, $5,000, by the will of Frank R. Stine.

Lutheran Hospital, New York, $3,000, by the will of Mrs. Anna Hess.

Montefiore Home, and Home for Aged and Infirm Hebrews, New York, each $1,000, by the will of Mrs. Rachael H. Pfeiffer.

Jewish Hospital Association of Philadelphia, $20,000 for the endowment of a perpetual free bed in memory of Martin and Theresa Siedenbach; Federation of Jewish Charities, Philadelphia, $20,000, and Jewish Foster Home and Orphan Asylum, $20,000, by the will of Henry Siedenbach.

WAR NOTES

Work of Surgical Dressings Committee.—The Surgical Dressings Committee of Boston appeals for further funds for the carrying on of its work and reports that since October the number of volunteer workers under this committee have increased from 400 to 740; that eighty-seven branches have been established and that the shipments of surgical dressings abroad since November have amounted to 1,169,067 dressings, all of which were sent to the war hospitals of the allies. The appeal for funds is endorsed by the Surgeons' Advisory Committee and by the Financial Advisors.

Red Cross Supplies Appreciated.—Letters of appreciation of the shipments of medical and surgical supplies to the Austrian Red Cross have been made on behalf of that organization to the American Red Cross by Gen. Oskar von Zednik in which he states that the consignment shipped February 4 has reached Austria in perfect condition.——The director of the Belgian Red Cross work in Calais, France, gratefully acknowledges the receipt of eight cases of war relief supplies shipped by the American Red Cross.——The receipt of six cases of clothing for destitute children in Flanders is acknowledged in a grateful note.—The Duchess of Sutherland, writing from Red Cross Hospital No. 9, British Expeditionary Force, sends her grateful thanks for three cases of supplies recently received.——Dr. Joseph A. Blake, surgeon in chief of the French Military Hospital, has received two cases from the American Relief Clearing House.——Sir William E. Garston, chief of the stores department of the British Red Cross, sends grateful thanks to the joint war committee for twenty cases of war relief supplies sent by the American Red Cross.——Dr. Ravenig writes from Rouen acknowledging the receipt of an American Red Cross shipment.——The Marchioness of Aberdeen acknowledges the receipt of nine cases of war relief supplies received through the British Red Cross stores department, London, from the United States.——Herr von Schelling, on behalf of the Central Committee of the German Red Cross, acknowledges receipt of seventy packages addressed to Dr. Frederick Cameron and forwarded from the American Embassy, Berlin. These packages have been forwarded to Frankfort, Hamburg, Wiesbaden, Bremen, Cologne, Hannover, Hirsau and Munich, as desired.

PARIS LETTER

PARIS, May 11, 1916.

The War

TRENCH FOOT

Drs. V. Raymond, of the military hospital of Val-de-Grâce, and J. Parisot, of the Faculté de médecine de Nancy, have just communicated to the Académie des sciences an interesting study of trench foot. They consider the condition a peripheral neuritis. Among the various etiologic causes which have been invoked, Raymond and Parisot attach importance only to cold damp. They were led to the idea of a localized infection of the foot and set themselves to seek for the agent. They have isolated a mold from the lesions, and by inoculation of pure cultures of this fungus in animals have been able to reproduce typical lesions similar to those observed in man, that is to say, edema, blisters and eschars. They conclude that the condition called trench foot or frost bite of the foot is a mycetoma comparable to Madura foot. It is not really a frost bite but a mildew of the foot. The fungus is found ordinarily in the infected soil, in straw, manure, etc., and it is brought into contact with the feet by the mud of the trenches. It penetrates the tissues by excoriations or by the matrix of the nails. Almost all the men who have remained in the trenches any time are afflicted with onychomycosis. The local fall of temperature, resulting from standing in the water, favors the implantation of the fungus, for this parasite has its optimum development between 25 and 30 C. (77 and 86 F.).

These observations permit of indications for prophylaxis and therapeusis, namely, cleaning and disinfecting the feet by means of soap and camphorated alkaline, or better, borated solutions. The results have been excellent. Edema disappears in three days, and the neuritic pains in from fifteen to twenty days. The eschars, characteristic of the graver forms, are cured more slowly, but the treatment prevents the extension of the lesions, so much so that though the number of cases has been large, amputation of the foot has never yet been necessitated.

MEDICAL QUALIFICATIONS AND PROMOTION

In a previous letter I have dealt with the decree providing for the special promotion of physicians and pharmacists in possession of certain academic or institutional qualifications (THE JOURNAL, Feb. 12, 1916, p. 522). M. Prat, a deputy, has just drawn the attention of the minister of war to the fact that even though they may not belong to an academic body, physicians and pharmacists, owing to their academic qualifications and their scientific work, present special guarantees of knowledge and experience. The deputy suggested that these qualifications and work should be accorded a fixed value and not one varying with the personal ideas of district officials, so that those officers whose reputation was beyond dispute should be assured a rapid promotion to higher rank and a military situation equivalent to their scientific position, in the same way as has been done for members of the teaching body. M. Prat received the following answer: "In making promotions, special qualifications and scientific work of physicians and pharmacists are taken into account; but it does not seem possible to accord to these diplomas and work a fixed value giving the right to promotion."

THE ORGANIZATION OF THE CIVIL MEDICAL SERVICE

The minister of the interior and the undersecretary of state for the health service have been occupied with the organization of the medical care of the civil population, the supply of physicians having become insufficient in certain regions, owing to the call to the colors of a number of physicians belonging to the auxiliary service or to the reserve. It has been decided that the prefects and regional directors of the health service will deliberate on the distribution in the departments of the physicians who will be allotted to them. In sectors having an insufficient number of physicians, the work will be carried on by surgeons of the army or of the reserve. For recompense these will receive only their military pay and no fees. The municipalities will provide them with traveling expenses or will furnish the means of transport.

GRAFT TO SUPPLY LOSS OF A PORTION OF SKULL

At a recent session of the Société des chirurgiens de Paris, Dr. Maret showed several patients on whom he operated in May, 1915, after the following plan: The graft consists of a portion of the external table of the skull, cut so as to be of exactly the same form as the area to be covered and a little larger. This portion of the external table, covered with its

periosteum, is completely detached on three sides, but on the fourth side, that neighboring the lesion, the periosteum and fibrous adhesions are left and it is bent back on these as on a hinge. The result is remarkable. It is easier than would be thought to raise the external table of the skull bones (except, perhaps, those of certain regions, such as the wing of the temporal), especially in relatively young patients, those not over 40 years old.

Personal

The Académie des Sciences has elected, as corresponding member in the section of medicine, Dr. Yersin of Nha-Trang (Annam), former worker at the Pasteur Institute, well known for his work in bacteriology and especially on antiplague serum.

Medical Epigraphy

Dr. Raphaël Blanchard, professor at the Faculté de médecine de Paris, who interests himself greatly in the history of medicine, has undertaken the publication of a *corpus* of all the inscriptions concerning physicians and biologists or those connected with medico-biologic sciences. The first volume of this interesting work has just appeared and contains no less than 1,258 inscriptions.

LONDON LETTER

LONDON, May 22, 1916.

The War

THE EFFECTS OF THE WAR ON POPULATION

At the Royal Statistical Society, two interesting papers on this subject were read. Sir J. Athelstane Baines showed that the relative number of the marriageable of both sexes in the population has risen considerably since 1871, but that the number who marry is proportionally smaller. There is also a tendency to marry later, thereby shortening the productive period, and for the married to have smaller families. A great decline in the birth rate had been the result, especially since the beginning of the century. Owing, however, to a similar decline in the death rate, the rate of natural increase of the population, though generally on the down grade, had been falling more rapidly of late, as the births had been declining in number more than the deaths. The distribution of the population by age and sex had been materially affected. In regard to age, the diminution of the number of children, which set in in the late seventies of the nineteenth century, at first raised the proportion of adults in the prime of life, and at the most productive ages. It also tended to lower the death rate, which is at its lowest during adolescence and early middle life. But, as the diminution continued, the people of middle life began to pass into the ranks of veterans, among whom the mortality is almost as high as at the beginning of life; the death rate, therefore, tended to rise and the population to be older, not by reason of greater longevity, but from the lack of reinforcements from below. As the numbers at the productive ages grew smaller, the birth rate tended to decline, irrespective of less or later marriage or the voluntary restriction of childbearing. As the mortality of females is considerably lower than that of males, and as it is the men chiefly who emigrate, the balance of sex is slowly inclining more and more on the side of women. The short supply of children is not entirely irremediable, since it may be somewhat counteracted by the measures now being put into force for the preservation of infant life.

Mr. J. W. Nixon discussed the effect of war on national vital statistics. He analyzed the statistics of births, deaths and marriages in France and Prussia for the period of 1868-1873 and showed that both countries experienced a rise in the death rate in 1870 and 1871—the increase in the number of "civil" deaths being greater than the number of "military" deaths. This was especially marked in the case of France, the number of "civil" deaths being 437,000 more in 1870-1871 than in 1868-1869, when the number of "military" deaths was at the most 150,000. The rise in the death rate was felt at all ages and shared equally by the two sexes. Not only the two belligerents but the three surrounding neutral states of Belgium, Holland and Switzerland all showed a period of maximum mortality in 1871. England and Wales remained unaffected. After the war, rapid recoveries set in in all countries except Prussia, the death rate in France falling in 1872 to 22 per thousand, the lowest on record. A serious fall in fertility was experienced by France and Prussia in 1871, and the three neighboring neutrals similarly suffered a reduction in their birth rates. There was a sudden decrease in marriage rates in France and Prussia in 1870; it was partly made up in 1871 on the conclusion of peace; but the year 1872 was a "boom" year in both countries, the marriage rate reaching the highest on record. In the present war, England, France and Germany are experiencing a serious fall in the birth rate. The death rate has not been seriously affected in England, the slight rise in 1915 being due to some extent to the bad winter and to an epidemic of measles. On the marriage rate the effect has been the reverse of that in the Franco-Prussian war, a large rise having taken place last year. The theory advanced early in the war that it was having the effect of increasing the proportion of male births—an old superstition—was found to be groundless. The serious effect which the war has on the vital statistics of the nation is shown by the fact that the "natural increase" of population in 1913 was 377,000. In 1915 it fell to 252,000, exclusive of deaths of soldiers abroad.

THE TESTING OF RECRUITS' HEARTS

As shown in previous letters, the military authorities are employing to the full all kinds of specialists both at the front and in this country. The danger of accepting as recruits men whose hearts are not sound enough to stand the rigors of soldiering has been obviated in London by a new scheme. In addition to the routine examination which every recruit undergoes at the enlistment depots, it has been arranged that every recruit whose heart shows the least abnormality shall be examined by specialists at the National Hospital for Diseases of the Heart. "Please run up those stairs to the roof and back" the recruit is told. On his return to the ground floor his pulse rate, breathing rate and blood pressure are taken and compared with the pulse rate, etc., obtained before the candidate went stair climbing. After a rest of three minutes the pulse and blood pressure are again measured. The electrocardiograph is then employed and a tracing obtained of the heart's action. From all these data the specialists then decide whether the candidate is fit for Class 1, general service at home and abroad; Class 2, field service at home; Class 3, garrison service; Class 4, labor purposes and sedentary work, or is unfit for any army service. To make doubly certain of not admitting unfit men, each recruit is separately examined by two specialists.

Diphtheria from Cats

An outbreak of diphtheria in an orphanage has been traced to cats. Sixty-nine cases, which were the great majority of those which occurred, came from the boys' house. After many investigations and precautions, such factors in the production of the disease as sanitary defects, contaminated water supply and food were eliminated. Realizing that there must be a carrier of the bacillus, the physician in charge decided to turn his attention to the cats, and took swabs from all their throats. On bacteriologic examination it was found that the four cats from the boys' side of the orphanage were suffering from diphtheria; the four cats from the girls' side, although showing other micro-organisms in profusion, did not prove to have the true diphtheria bacillus. The cats were destroyed, and after that only ten more cases of diphtheria occurred. They occurred within a few days, showing that the patients had already been infected when the cats were destroyed. There have been no cases since.

Marriages

WILLIAM SIDNEY JOHNSON, M.D., Carbondale, Pa., to Miss Maude Irene Dakin of Washington, D. C., June 3.

ALFRED DEAN, M.D., Grand Forks, N. D., to Miss Helen LaRue Schurtz of Negaunee, Mich., May 24.

HAROLD WARD STONE, M.D., Minneapolis, to Miss Frances Carlin Murphy of Faribault, Minn., May 15.

LIONEL LOUIS ALBERT, M.D., Malden, Mass., to Miss Gertrude Steinmetz of Yonkers, N. Y., May 22.

HORACE A. LOWE, M.D., to Miss Pearl Lines, both of Springfield, Mo., at Monett, Mo., May 9.

ROBERT GRIER LECONTE, M.D., to Mrs. Susan Sturgis Stewart, both of Philadelphia, May 24.

MARTIN HENRY MERRITZ, M.D., Chicago, to Miss Norma Helen Irasek of Milwaukee, May 17.

HUGO MELLA, M.D., to Miss Pearl Weed, both of Bismarck, N. D., at Minneapolis, May 27.

OTTO CARL HORST, M.D., to Miss Rebecca Garrett, both of Springfield, Mo., April 27.

GEORGE NYE HISKEY, M.D., to Miss Stella Elizabeth Uthe, both of Chicago, June 3.

Deaths

William T. S. Dodds, M.D., Indianapolis; Medical College of Indiana, Indianapolis, 1898; aged 42; a Fellow of the American Medical Association; associate professor of clinical diagnosis in Indiana University School of Medicine, Indianapolis, and professor of bacteriology in the Indiana Dental College; pathologist to the Indianapolis City Hospital and Dispensary and instructor in bacteriology at the Deaconess Hospital, Indianapolis; a specialist in diseases of the chest; who started the tuberculosis clinic movement in Indianapolis and served for two years as deputy coroner of Marion County; died at his home, May 22, from heart disease.

Frank Parker Tays Logan, M.D., Gloucester, Mass.; Harvard Medical School, 1897; aged 49; a Fellow of the American Medical Association and a member of the Association of Military Surgeons of the United States; captain and assistant surgeon, Eighth Massachusetts Infantry, U. S. V., during the war with Spain, and assistant surgeon of the Eighth Infantry, Mass. V. M.; surgeon on the staff of the Addison Gilbert Hospital, Gloucester, and lecturer on materia medica and therapeutics in the training school of the institution; died at his home, May 26.

William Page McIntosh, M.D., Surgeon, U. S. P. H. S., College of Physicians and Surgeons, Baltimore, 1882; aged 60; a Fellow of the American Medical Association and an active member of the Association of Military Surgeons of the United States; who entered the United States Public Health Service in November, 1885, was promoted to passed assistant surgeon, Nov. 1, 1888, and to surgeon, May 20, 1890, and who was placed on waiting orders, April 15, 1915, on account of illness; died at Linwood, Howard County, Md., May 27.

John Louis Masters, M.D., Indianapolis; Louisville (Ky.) Medical College, 1885; aged 56; a Fellow of the American Medical Association and American Academy of Ophthalmology and Oto-Laryngology; a specialist on diseases of the eye, ear, nose and throat; professor of clinical otology, rhinology and laryngology in the Indiana University School of Medicine; a member of the consulting staff of the City Hospital and Deaconess Hospital, Indianapolis; died suddenly at his home, May 25, from cerebral hemorrhage.

Francis Barker Davison, M.D., Factoryville, Pa.; Pennsylvania Medical College, Philadelphia, 1853; aged 88; once president of the Lackawanna County (Pa.) Medical Society and a member of the State Medical Society and American Medical Association; surgeon of the One Hundred and Twenty-Fifth Pennsylvania Volunteer Infantry during the Civil War; for thirty-eight years a practitioner of Fleetville, Pa.; died at the home of his daughter in Factoryville, April 30, from senile debility.

Nathan Jenks, M.D., Detroit; Cornell University, New York City, 1899; aged 43; a Fellow of the American Medical Association; associate professor of obstetrics in the Detroit College of Medicine and Surgery; visiting obstetrician to the Women's Hospital and Infants' Home, Detroit; a member of the American Association of Obstetricians and Gynecologists and a fellow of the American College of Surgeons; died in Harper Hospital, Detroit, May 30, three weeks after a surgical operation.

Charles Theodore Benner, M.D., Tiffin, Ohio; Western Reserve University, Cleveland, 1878; Bellevue Hospital Medical College, 1882; aged 59; formerly a Fellow of the American Medical Association; a member of the Ohio State Medical Association, and once president of the Seneca County Medical Society; local surgeon of the Pennsylvania System; for one term a member of the city council of Tiffin; died in his office in Tiffin, May 23, from angina pectoris.

John R. McCullough, M.D., Chicago; College of Physicians and Surgeons, Chicago, 1883; aged 80; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society and Chicago Pathological Society; a practitioner for forty-three years; a veteran of the Civil War in which he served as assistant surgeon of the First Wisconsin Volunteer Infantry, and was a prisoner in Libby Prison; died at his home, May 4.

Victor Davis Miller, M.D., Mason and Dixon, Pa.; Jefferson Medical College, 1861; aged 78; a member of the Medical and Chirurgical Faculty of Maryland; assistant surgeon of the Seventy-Eighth Pennsylvania Volunteer Infantry during the Civil War; coroner of Franklin County from 1864 to 1866; died at his home in Washington County, Md., just across the Franklin County line, May 25, from peritonitis.

Lyman Ware, M.D., Chicago; Northwestern University Medical School, 1866; University of Pennsylvania, Philadelphia, 1868; aged 74; a Fellow of the American Medical Association and a member of the Chicago Ophthalmological and Otological Society; a specialist on diseases of the eye; hospital steward of the One Hundred and Thirty-Second Illinois Volunteer Infantry during the Civil War; died at his home, June 1, from heart disease.

Patrick M. Kelly, M.D., Kankakee, Ill.; Washington University, St. Louis, 1892; aged 55; a Fellow of the American Medical Association; for many years a practitioner of Litchfield, Ill., and health commissioner of that city; superintendent of the Kankakee State Hospital from August, 1913, until his resignation a few months ago on account of ill health; died in Colorado Springs, May 30, from nephritis.

Walter C. Overstreet, M.D., Sedalia, Mo.; Missouri Medical College, St. Louis, 1878; Bellevue Hospital Medical College, 1882; aged 58; a Fellow of the American Medical Association; and a member of the National Association of Railway Surgeons; consulting surgeon to the Missouri, Kansas and Texas system; formerly mayor of Sedalia; died in the Punton Sanitarium, Kansas City, May 25.

Alonzo Lemuel Leach, M.D., Cape May, N. J.; Jefferson Medical College, 1868; aged 71; formerly a member of the Medical Society of New Jersey; for twenty years a resident of Pennsylvania and surgeon of the First Pennsylvania Infantry; and demonstrator of the Philadelphia School of Anatomy; for several years president of the board of health of Cape May; died at his home, May 25.

Clark Wasgatt Davis, M.D., Cincinnati; Miami Medical College, Cincinnati, 1886; aged 52; a Fellow of the American Medical Association; medical director of the Union Central Life Insurance Company for many years; health officer of Cincinnati from 1900 to 1906; died at his home, May 25, from heart disease.

M. Fred Dattelzweig, M.D., Chicago; Bennett Medical College, Chicago, 1898; aged 46; a Fellow of the American Medical Association; for many years assistant county physician of Cook County in charge of the North Side division; died at his home, May 30, from heart disease, complicating ptomain poisoning.

Marion Delmar Ritchie, M.D., Pittsburgh; University of Pennsylvania, Philadelphia, 1899; aged 42; a Fellow of the American Medical Association and a member of the American Academy of Ophthalmology and Oto-Laryngology; laryngologist to the Columbia Hospital; died at his home, May 24.

William F. Toombs, M.D., Springfield, Mo.; University of Louisville, Ky., 1880; aged 73; for twenty-five years a practitioner of medicine and later a druggist who moved three years ago to San Antonio on account of his health; died in the Springfield Hospital, May 20, from senile debility.

Frederick W. Lee, Tiskilwa, Ill.; (license, Illinois, years of practice, 1877); aged 81; a practitioner for half a century; a veteran of the Civil War; formerly trustee and president of the village board of Tiskilwa; died at the home of his son in Tiskilwa, May 10.

Henry Hardenbergh, M.D., Port Jervis, N. Y.; College of Physicians and Surgeons in the City of New York, 1859; aged 81; vice president of the Barrett Bridge Company and director of the Port Jervis Waterworks Company; died at his home, May 29.

Edward A. Fox, M.D., Cincinnati; Medical College of Ohio, Cincinnati, 1905; aged 34; local surgeon for the Big Four System; county infirmary physician of Hamilton County in 1909 and 1910; died in Bethesda Hospital, Cincinnati, May 6, from septicemia.

Charles W. Hine, Lonoke, Ark. (license, Arkansas, 1886); aged 71; formerly a Fellow of the American Medical Association; for many years a practitioner and druggist of Stanton, Iowa; died in a hospital in Chicago, May 16, from malignant disease.

Willard Herbert Linder, M.D., Clinton, Iowa; Marion-Sims College of Medicine, St. Louis, 1896; aged 40; formerly of Des Moines and Story City, Iowa; died in the Agatha Hospital, Clinton, May 22, a few hours after an operation for appendicitis.

John B. Anderson, M.D., Chetopa, Kan.; Medical College of Ohio, Cincinnati, 1872; aged 68; died at his home, May 18.

William H. Davis, M.D., Corydon, Ind.; University of Louisville, Ky., 1882; aged 65; died at his home, May 18.

Samuel H. Bennett, M.D., Mendon, Mich.; University of Buffalo, N. Y.; 1865; aged 79; died at his home, May 14.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE WINE OF CARDUI SUIT

(*Continued from page 1810*)

May 8, 1916, Morning

TESTIMONY OF DR. R. L. THOMAS

The court met pursuant to adjournment. Dr. R. L. Thomas was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. R. L. Thomas testified that he is a physician practicing in Cincinnati, Ohio. He graduated in 1880 from the Eclectic Medical College, of which he is now dean and professor of the practice of medicine. He is on the staff of the Seaton Hospital. He treats diseases peculiar to women in his general practice, using medicines, local applications, etc.; he also uses mechanical means, such as pessaries and tampons. He has not had any experience with cnicus benedictus or with viburnum prunifolium.

There was then asked of the witness a hypothetic question similar to that asked of other witnesses. He stated that he did not think that the hypothetic medicine would have any value in the treatment of uterine displacements as it would be impossible for this remedy to restore the ligaments after they were relaxed or to repair the torn perineum. He did not think that the hypothetic medicine would be of any value in the treatment of vaginitis or in other forms of pelvic inflammations. He stated that most likely it would be harmful by the excitation to renewed activity of the gonococcus by the use of a large quantity of alcohol.

There was then read to the witness a quotation from the Home Treatment Book for Women concerning vaginitis. The witness stated that it would be impossible for Wine of Cardui to act on the cause of this disease in a curative sense. He believes it is not a scientific and specific remedy for this condition.

The witness then defined in brief, amenorrhea, dysmenorrhea, menorrhagia, and metrorrhagia, all of which are due to pathologic conditions. He believed that the hypothetic medicine would be worthless in these conditions. He considers the period known as puberty and menopause as normal and physiologic conditions. He stated that in his opinion, the remedy could not be any good and could not do any good to a physiologic condition and it might possibly do a great deal of harm by overstimulation, by disturbing the digestion, or disturbing the nervous system. The witness stated that the duration of the menopause is from one to three years and it is not necessarily a critical period in a woman's life. He stated certain pathologic conditions which might occur in the menopause and stated that in this sense it was a critical time. He stated that it was very inadvisable to take Wine of Cardui regularly throughout the entire period as recommended in the Home Treatment of Women, page 38, which was read to him.

Q.—Why do you think that, Doctor? *A.*—Well, in the first place a great many of these changes do not affect unfavorably and you would be taking a stimulant for a normal condition. In the cases that are inclined to be a degeneration, you have these conditions as I stated a while ago. You may have the degeneration of a malignant growth of the uterus, or you may have it of the breasts, or you may have it of the ovary and there is nothing in the remedy that I can see that would be efficacious in relieving those conditions.

The witness stated that there was nothing in the hypothetic solution which would tend to repel the attack of diseases in the change of life. He would object to the taking of the hypothetic medicine during the whole term of pregnancy. Unless there was special difficulty, medicine would not only be valueless but might do harm. He defined as a misstatement the following quotation from the Home Treatment for Women:

> "No one need be afraid of taking Cardui during pregnancy. Its action is gentle and strengthening, and it can never do anything but good."

Q.—Why do you think it is a misstatement, Doctor? *A.*—I think a patient that would take a remedy that contained 20 per cent. of alcohol for nine months—you might get a disturbance of the digestive apparatus, you might get overstimulation, you would get a change in elimination and you would be very apt to get an addiction to the drug or at least there might be—a patient might be led into a desire to take the stimulant constantly.

Q.—What, if any, might or would the effect be in your opinion of such a continued use of an alcoholic solution throughout the period of pregnancy of any of the special organs of the woman's body, that is, the organs of elimination? *A.*—It would impair the organs of elimination.

Q.—What would be the effect of it, do you think, if any, upon the kidneys? *A.*—The tendency would be to be harmful. We find nephritis—when we do find a morbid condition of the pregnant woman—it is very apt to be the kidney. In fact, even under normal conditions, we have our patients contribute samples every three or four weeks during the pregnant time to see whether there is any tendency to a nephritis, which is the most serious lesion of a pregnant woman. Alcohol tends towards nephritis, to produce it.

Q.—By alcohol you mean—or by nephritis you mean Bright's Disease, what we usually know as Bright's disease? *A.*—Bright's disease, commonly known as Bright's Disease.

Q.—I wish to read to you the following quotation, from the Ladies' Birthday Almanac of 1909 published by the Chattanooga Medicine Company, and copyrighted by the Chattanooga Medicine Company. I read from page 17.

> "Do you suffer from any of these symptoms of female complaints? Headache, backache, sideache, shoulder pains, breast pains, leg, hip or thigh pains; bowel pains, drawing pains, bearing down pains, dragging sensations, falling feelings, inability to walk, dizziness, numbness, nervousness, fainting spells, morning sickness, sleeplessness, tired feelings after walking, inability to lift weights, frequent urination, morbid distaste for walking, painful menstruation, irregular menstruation, unnatural stoppage, too profuse, too often, whites, flooding, weight of bowels, straining at stool, cramps, sterility, general weakness, change of life, hot flashes, cold flashes, capricious appetite, nervous delusions, indigestion, loss of appetite, sick headache."

Have you an opinion—what is your opinion as to the truth of these various statements?

Mr. Walker:—You did not give the date of that.

Mr. T. J. Scofield:—In conclusion, on page 17, following what I have just read to you, appears the following:

> "Thousands of ladies who suffer from the above symptoms, have obtained relief by taking Cardui, Woman's relief. Try it. It will help you."

Mr. Walker:—What date was that?

Mr. T. J. Scofield:—I am reading from the 1909 almanac, page 17.

Q.—What is your opinion as to the truthfulness of these statements, Doctor? *A.*—Well, the symptoms that are given there come from such a variety of causes, that it will be impossible for any one remedy or any combination of remedies to relieve all those conditions.

CROSS-EXAMINATION BY MR. HOUGH

Dr. Thomas testified that he does not know carduus benedictus or centaurea. Cnicus benedictus he stated is a principle of blessed thistle and he has never used it. He has not used carduus marianus to any extent. It is a vegetable remedy recommended for low conditions of the nervous system and atony of the liver. It has not to his knowledge, been used for dysmenorrhea, amenorrhea or irregular passive uterine hemorrhages. His knowledge, he stated, is limited to his own experience. He has not read Ellingwood's Therapeutics on this subject or King's American Dispensatory on this subject. He recommends carduus marianus in one place in his work as a compilation reputed to be used for atony of the liver. He does not use it himself at all.

Q.—Upon what authorities did you base your statement then? *A.*—From reading, from some prominent authors.

Q.—What were they? *A.*—Of the homeopaths. The homeopaths used carduus marianus for liver troubles, some liver troubles partly; despondency in liver troubles.

Q.—Do you know whether there is any difference in action between carduus marianus, and carduus benedictus? *A.*—No, sir, I do not know the difference.

Q.—If the hypothetical question had read "carduus marianus," instead of cnicus benedictus, would your opinion have been the same as you expressed it?

Mr. T. J. Scofield:—That is objected to.

A.—Just the same.

Mr. T. J. Scofield:—He has already answered it, but the hypothetical question did not say carduus marianus.

Mr. Hough:—I say, if it had said it. I am entitled to vary the question to test the knowledge of the witness.

The witness knows viburnum prunifolium, which he has used for dysmenorrhea. What he has written on the subject is based on his own experience and that of other physicians. Dr. Thomas does not agree with Ellingwood on all the uses of viburnum. He agrees that it is valuable as a uterine sedative in certain conditions.

Q.—Is viburnum prunifolium good in threatened miscarriage? *A.*—In some cases of threatened miscarriage.

Q.—Is it not particularly indicated in habitual abortion? *A.*—In a general way, depending upon the condition, abortion resulting from different conditions.

Q.—Is it not often efficient in controlling the morning sickness of pregnancy? *A.*—Not in my experience.

Q.—But I am not asking it on your experience alone, but your experience and reading? *A.*—That is all I can testify to, my experience in the use of the drugs.

Q.—No, your experience and reading. Your familiarity with the literature on the subject? *A.*—Yes, sir.

Argument was then made by attorneys concerning the introduction of evidence based on what the physician has read.

Q.—Is it not a fact that in a number of cases, when given for menstrual irregularities or for the distress induced by uterine displacements in previously sterile females, pregnancy has promptly occurred, proving the influence of the agent in restoring normal functional ovarian activity? *A.*—I do not know that it has had that effect.

Q.—Do you know that it has not had that effect? *A.*—No, sir.

Q.—Is it not a fact that it is the proper treatment of irregular, sudden menstrual flow occurring during repetitions and long continued or violent inflammatory fevers, especially in young ladies? *A.*—I did not catch that, the first part of your question.

Q.—It is the treatment of irregular, sudden menstrual flow, occurring during repetition and long continued or violent inflammatory fevers, especially in young ladies? *A.*—No, sir.

Q.—You say that is not the fact? *A.*—Not to my knowledge. I never used it for that in that way.

Mr. Hough:—Now I ask leave to read to the witness from Ellingwood on that subject.

Mr. T. J. Scofield:—I object to that, if the Court please. Dr. Ellingwood is right over here.

THE COURT:—You may read from any book that he has written.

Mr. Hough:—That the witness himself has?

THE COURT:—Yes.

Mr. Hough:—But the witness says he bases his opinion in part on what Ellingwood has written.

THE COURT:—As to viburnum prunifolium?

Mr. Hough:—I understood him so.

THE COURT:—He has not said that yet.

To which ruling of the Court the plaintiff, etc., excepted.

Mr. Hough: *Q.*—Don't you base your opinion in part on what Ellingwood says in his Materia Medica, and Pharmacognosy? *A.*—I base it so far as it meets the experience that I have had, certainly.

Q.—You mean you disagree with them if they state anything different from your own experience? *A.*—Not necessarily disagree, no, sir, but not necessarily believe all the statements.

Q.—In what cases have you yourself used viburnum prunifolium? *A.*—I have used viburnum prunifolium for the condition where we have as a result of neuralgic conditions irritation resulting in expulsive character of pains, for instance, in dysmenorrhea. If there is a sensation of bearing down, as if the patient was trying to pass something, expulsive pain, as an antispasmodic, in that condition. Not all conditions of dysmenorrhea do I use it in.

Q.—How much alcohol was in the preparation which you used under those conditions? *A.*—How much alcohol?

Q.—Yes. *A.*—In the preparation I used, the specific tincture, it contains about 46 per cent.

Q.—Forty-six per cent. of alcohol? *A.*—Of alcohol, yes, sir.

The witness stated that he has never used senecio aureus. It was used by the eclectic school as a uterine tonic. It is a vegetable drug. It is used in cases of leukorrhea.

The witness does not know the amount of alcohol in it.

Q.—When you have medicines containing alcohol and use them, do you consider that the alcohol has a deleterious effect? *A.*—I cannot say I use them in that way. Not in the way I use them.

Q.—You mean you can use alcohol with a deleterious effect—that is, your specific medicines, or you can use them with a beneficial effect, can you? *A.*—The way that the specifics are used, they are used with a beneficial effect. The way they are recommended, the short doses they are recommended in, it would have no deleterious effect.

Q.—Well, what is the dose recommended of cnicus benedictus? *A.*—I do not know.

ALCOHOL IN LLOYD'S PREPARATIONS

The witness does not know of Lloyd's cnicus benedictus but he has heard of it. The dosage of Lloyd's prunifolium is from 3 to 5 drops in the form of a tincture.

Q.—Isn't the dosage a teaspoonful every hour or two? *A.*—A teaspoonful of the tincture.

Q.—Of the specific medicine, viburnum prunifolium? *A.*—No, sir.

Q.—(Handing bottle to the witness). Is this the medicine that you use, or that you are referring to? *A.*—Yes, sir.

Q.—It comes in that form? *A.*—It comes in that form. That is never used a teaspoonful at a dose.

Q.—What does that say on there on the label? *A.*—It says it is a specific medicine, black-haw, one dram, which is a teaspoonful, water four ounces, and a teaspoonful of the mixture—

Q.—Read what it says on the bottom. *A.*—Every hour or two. A teaspoonful of the mixture, not the—

Q.—How much alcohol would there be in the mixture? *A.*—Well, there would be a teaspoonful of the mixture in four ounces of water. The 46 per cent. alcohol in four ounces of water and you would get a teaspoonful out of this water.

Q.—How much alcohol would you get in a day if you took that mixture every hour? *A.*—Every hour you would get about ten teaspoonfuls of the mixture, and you would get probably 25 or 30 drops of the medicine in the course of a day, which would include—

Q.—Did you say medicine or alcohol? *A.*—I said the medicine.

Mr. Hough: *Q.*—The dose you say is three to five drops of the specific tincture? *A.*—Yes, sir.

Q.—How does that compare in amount with the amount of viburnum prunifolium in the hypothetical medicine, which was asked about? *A.*—It would be much stronger.

Q.—Which would be much stronger? *A.*—The specific tincture.

Q.—How much stronger? *A.*—Well, I would say it would be a great deal stronger.

Q.—It is just about the same, isn't it? *A.*—No, sir, I think not.

The witness has not used carduus marianus. Most of the medicines which he uses contain alcohol. They run from 40 per cent. up.

Q.—Now, is the reason that the alcohol that is in the medicine which you use—does not have a bad effect—I say, is the reason that that amount of alcohol is thoroughly oxidized in the system? *A.*—No, there is a difference in the preparation of the medicines to begin with.

Q.—You mean in the percentages of alcohol? *A.*—In the percentages of alcohol.

Q.—Let us take the largest amount which is in any medicine you use? *A.*—You take the specific remedies as made by Lloyd, and it takes all the percentage of alcohol to extract the virtue of those drugs. You take viburnum prunifolium, for instance out of the green bark of the black-haw, which is the viburnum prunifolium, it takes 46 per cent. to extract all of the virtue of the drug, by that amount of alcohol. Twenty per cent. of alcohol will not extract it. Consequently you are getting more alcohol than you are getting drug.

Q.—You mean out of the green— *A.*—Out of the green bark, and the dry bark has less I think of virtue. The dry bark you can buy for 12 cents a pound, and the green bark you pay $1.50 a pound for. Lloyd pays $1.50 a pound for every pound of viburnum he makes.

Q.—You mean then, that if a large amount of alcohol is necessary to extract the virtues of any herb or drug, that that amount of alcohol is not dangerous, provided it is the amount which is necessary to extract the properties of the drug? *A.*—Provided this is the amount and you use it in the dilution we use it. We are not giving this in teaspoonful—

Q.—Now take—

Mr. T. J. Scofield:—I insist that the witness finish his answer.

The Witness:—I say, we are not giving this in teaspoonful doses of the tincture. We are giving the dilution, which is a very marked difference. If you put a teaspoonful of that tincture in four ounces of water and give a teaspoonful of that, you are getting a very small amount of alcohol, and that alcohol is diluted.

Mr. Hough: *Q.*—What is the largest amount of alcohol in any drug which you administer yourself? *A.*—I do not know the largest amount.

Q.—What is the largest amount that you recollect? *A.*—I am not sure; I believe in strophanthus the alcohol is possibly 70 per cent. I am not sure.

Q.—What is the dose? *A.*—From half a teaspoonful to a teaspoon, to four ounces of water. Usually a smaller dose.

Q.—How frequently? *A.*—Generally a smaller dose.

Q.—How frequently? *A.*—Every three or four hours.

Q.—What is the largest amount of alcohol, measured in drops, we will say, which an individual who is taking medicine can safely take into the stomach without getting a deleterious effect from the alcohol alone? I am talking now about one dose. *A.*—I do not know.

Q.—Could they take as much as 48 drops of alcohol diluted with five times that amount of water, at one dose, without having any deleterious effect from that one dose? *A.*—They might.

Q.—And if it had no deleterious effect, there would be no cumulative effect whatever, would there? *A.*—From the one dose, no.

Q.—No. Then, if they took it three times a day, there would be no cumulative effect? *A.*—Possibly not—and only took it for one day.

Q.—Well, if taken through the three to five days of the monthly period, it would not have any effect, would it? A.—It is not ever given that long. It generally relieves the first day, if it relieves at all.

Q.—How long is it usually given? A.—From eight to ten hours the first day, and generally relieves the trouble.

Q.—Well, if it were given through a period of three days, it would have no different effect than if it were given through a period of one day? A.—Possibly not.

Q.—Isn't it a fact that the specific medicine, black-haw, or viburnum prunifolium, exercises a direct influence over the sympathetic nervous system, preventing reflex irritation, especially of the stomach and heart?

Mr. T. J. Scofield:—Wait, Doctor, that is objected to. That is not cross-examination, and if they simply want to test the Doctor's ability—

Mr. Hough:—It certainly is.

Mr. T. J. Scofield:—They have gone far enough.

Mr. Hough:—I am talking about viburnum prunifolium.

Mr. T. J. Scofield:—We are not talking about a specific medicine here.

THE COURT:—You may ask him what he gives it for.

Mr. Hough:—I am asking what he knows about the virtues of viburnum prunifolium.

THE COURT:—Ask him if he gives it for these various disorders.

Mr. Hough:—It does not make any difference whether he gives it or not, if he knows. He may know a great deal about a great many medicines that he don't use.

THE COURT:—Ask him if he knows whether or not it is used for that purpose.

To which ruling of the Court the plaintiff, etc., excepted.

Mr. Hough:—Is it used for that purpose?

Mr. T. J. Scofield:—That is objected to.

THE COURT:—He may answer.

To which ruling of the Court the defendants, etc., excepted.

Mr. T. J. Scofield:—It is not the medicine involved here, and it is not material whether some other medicine is given for the same condition or not. We are not investigating that.

Mr. Walker:—He is talking about viburnum prunifolium.

Mr. T. J. Scofield:—No, he is not. He is talking about a different preparation.

Mr. Hough:—I am asking about viburnum prunifolium. Is that not true?

A.—Acts upon the sympathetic, in heart troubles? Is that your question?

Q.—On the sympathetic nervous system, preventing reflex irritation, especially of the stomach and heart? A.—I have had no experience in that line.

Q.—Is it not indicated for that? A.—It seems to be on the bottle, I do not know; I never have used it for that purpose.

Q.—Is it not indicated to correct morning sickness and palpitation during pregnancy? A.—Some use it for that.

Q.—Is it not used to prepare a patient for labor, and facilitate a safe, uncomplicated and normal labor and especially to prevent postpartum hemorrhage? A.—Some may use it for that.

Q.—Is it not used in threatened abortion in dram doses every half hour or so? A.—No, sir, not dram doses of the remedy, and there are only certain conditions of abortion where it would be. We do not use, as a school, or as physicians, we do not use any one remedy for diseased conditions. For instance, abortion; there are a number of remedies that could be used for abortion, and we use them in special conditions for abortion, not all cases of abortion. We claim that there is no one remedy that will cure—that will affect all conditions of any one disease.

Q.—You said this is what you used, didn't you (referring to contents of bottle heretofore handed to witness)? A.—Viburnum prunifolium.

Q.—Now, I will ask that you read here what is on that label.

Mr. T. J. Scofield:—I object to that, if the Court please.

THE COURT:—What is the purpose of this?

Mr. Hough:—To show—

THE COURT:—This witness has told you what he does. Now he says he does use it for certain conditions tending to produce abortion. He says he never uses any medicine to correct all the conditions that would produce abortion, any one medicine. Now that was the answer, a perfectly straightforward answer.

Mr. Hough:—As far as it went, it is a perfectly straightforward answer and satisfactory. But we are not limited in asking this witness about a certain medicine, to things that he has used it for, if he knows something about the medicine.

THE COURT:—Exactly, but what has this bottle to do with it.

Mr. Hough:—Because he says that what that bottle says is true.

The Witness:—Oh, no.

THE COURT:—No, he has not testified to that.

Mr. Hough:—Do you say that any statement that is on that bottle is not true?

Mr. T. J. Scofield:—That is objected to.

THE COURT:—Objection sustained. He may read that, and then, if he relies upon what it says there, and says that it is true, that settles that proposition.

To which ruling of the Court the plaintiff, etc., excepted.

Mr. Hough:—Well then, read that and state if you rely on anything that is on there?

THE COURT:—Ask him if he agrees with it.

Mr. Hough:—If you agree with anything that is on there.

Mr. T. J. Scofield:—There is another reason why I object to that.

THE COURT:—It is just like a book, and I have ruled against quoting from the book.

Mr. T. J. Scofield:—Excepting that this preparation is not the viburnum prunifolium concerning which the doctor has been inquired of, and concerning which Mr. Patten testified here that he used.

Mr. Hough:—We will connect that up at another time, and in a different way. We are entitled to ask about viburnum prunifolium.

Mr. T. J. Scofield:—You will certainly not contradict what Mr. Patten said about it, because Mr. Patten told you that he used the viburnum prunifolium from the bark of the limb. That is not this preparation.

Mr. Hough:—That has nothing to do with the question at all. That is neither here nor there.

Mr. T. J. Scofield:—Yes, it is right here.

Mr. Hough: Q.—Will you state that you disagree with the statements on the bottle which you say contains the preparation which you used.

Mr. T. J. Scofield:—That is objected to.

THE COURT:—Objection sustained in that form.

To which ruling of the Court the plaintiff, etc., excepted.

THE COURT:—You might just as well hand him Mr. Ellingwood's book, and say "Mr. Witness, please be good enough to read that book through, and tell me whether you agree with it."

Mr. Hough:—If he had told me first that he studied Ellingwood's book and agreed with some of it, and disagreed with the other— I am entitled—

THE COURT:—Has he told you that he agrees with everything on the bottle?

Mr. Hough:—He has told me that that is the medicine which he uses.

THE COURT:—Yes.

Mr. Hough:—And now I am asking him to tell me the conditions for which that medicine is indicated on the bottle, that he disagrees with.

THE COURT:—No, you may ask him what conditions mentioned on the bottle he has used it for.

To which ruling of the Court the plaintiff, etc., excepted.

Mr. Hough:—Or whether he believes in it, or whether he knows it to be a fact.

THE COURT:—Supposing he says that he does not believe in it—

Mr. Hough:—Then that ends it as to that.

THE COURT:—Then you cannot put on a witness to prove that this man did believe it.

Mr. Hough:—If he says that there is something on the bottle that he don't believe in, that ends it. But if he says he agrees with what is on the bottle—

THE COURT:—Well, read it over and see what you agree with. I will save the point on that. Mr. Patten's testimony, however, as to viburnum prunifolium, is as Mr. Scofield stated it.

Mr. T. J. Scofield:—Exactly.

Mr. Hough:—Some people use the dry bark, and some use the green. Some use the bark from the root, and some the bark from the tree and the pharmacopeias have been changing as to that.

Mr. T. J. Scofield:—What does the Chattanooga Medicine Company use?

THE COURT:—If you won't give me a chance to talk now and then, we will never get through. The difficulty with your position in this case is that it is Wine of Cardui that is under examination, and we are interested in what is in that, and what character of viburnum prunifolium is in that. Now, if that is one kind, and this preparation of Lloyd's—this tincture of Lloyd's is another kind—

Mr. Hough:—That is another matter again, your Honor. That is not another kind.

THE COURT:—We will go into that later.

Mr. Hough:—I say I will connect that up later.

THE COURT:—That is different from what Mr. Patten said.

Mr. Hough:—Both come from the same shrub or tree.

THE COURT:—Just read it over and tell us what you accept and agree with.

To which ruling of the Court the defendants, etc., excepted.

A.—Well, I agree with it in some phases, not all of it.

THE COURT:—Well, tell us the things that you do agree with.

A.—The latter statement, uterine disorders, inducing hysteria, hysterical delusions and petit mal shall be treated with the remedy, if they are due to spasmodic conditions or irritation or nervous conditions.

Mr. Hough: Q.—You mean to say that that is the only statement on that with which you agree? *A.*—That is what I use it for.

Q.—I asked you whether you agreed with the statements there and asked for you to state which ones you do agree with. *A.*—I agree with that, that where it is used for that condition, threatened or painful dysmenorrhea, painful affections of the uterus, that occur as a result of nervous irritation, as an antispasmodic, I use it in that condition.

Q.—You mean then, that you disagree with all the other statements on there?

Mr. T. J. Scofield:—That is objected to.

Mr. Hough:—We are entitled to have the witness' attitude correctly defined.

THE COURT:—He says that is what he agrees with.

Mr. Hough:—I can agree with ten things, and I can say that I agree with Number 1. That don't mean that I disagree with the other nine.

THE COURT:—If he says he knows nothing about the other nine—

Mr. Hough:—If he says he knows nothing about the other nine, or says he disagrees with the other nine, then his attitude is clearly defined.

Q.—Do you agree or disagree with all the rest? *A.*—No, sir, I do not know the effect of it on all the rest.

Q.—How many of the other statements do you agree with?

Mr. T. J. Scofield:—That is objected to.

Mr. Hough:—That is perfectly competent.

THE COURT:—He has told you all he agreed with.

Mr. Loesch:—That is it.

Mr. Hough:—He has told us what he used it for. He has not said—

The Witness:—I agree with the statement, that it is an antispasmodic for neuralgic conditions in the female, resulting in expulsive pains.

Q.—Are there any other statements there with which you agree? *A.*—No.

Mr. Hough:—Well, that defines it.

Mr. Hough: Q.—Doctor, you say that Lloyd's Specific Medicine, called viburnum prunifolium, is made out of the green bark? *A.*—Out of the green bark.

Q.—How do you know that? *A.*—He told me so.

Q.—He told you so? *A.*—Yes, sir.

Q.—It is not in any of his literature, is it? *A.*—I do not know.

Q.—Well, you only know from what he told you? *A.*—I know that he makes—that there is a marked difference between the virtues of a dried drug and a green drug—

Q.—A very marked difference? *A.*—I know that Professor Lloyd—that the dried bark, which is practically worthless, he said, can be bought for 12 cents a pound, and the green bark at a dollar and a half a pound; so that there must be a difference, a good deal of difference in the virtue of them.

Q.—Well, you don't know how it was made, except what he told you? *A.*—That is all I know.

Mr. Hough:—I ask that his testimony on that point be stricken out.

THE COURT:—Well, that would mean to strike out then all of his testimony on viburnum prunifolium.

Mr. Scofield:—They called that out.

Mr. Hough:—I did not call it out, whether it was green or dried.

Q.—Now, is it not a matter of fact that in the book which they publish, they say that in some cases the green bark is employed, and in other cases the dry bark is employed, and again a bark that is partly dried; and in a few cases a drug is better for age—

Mr. Scofield:—I object to that—

Mr. Hough:—and that no rule of thumb is possible in plant pharmacy—

The Witness:—Yes.

Mr. Scofield:—I object to the question.

THE COURT:—Objection sustained.

To which ruling of the Court the plaintiff, etc., excepted.

Mr. Hough: Q.—Well, independent of what Professor Lloyd says about it, don't you know that to be a fact?

Mr. T. J. Scofield:—I object to that as immaterial and not cross-examination.

Mr. Walker:—In view of what he just said.

Mr. Scofield:—That is referring to all other drugs. We are not interested in other drugs.

THE COURT:—This man does not pretend to be a druggist.

Mr. Hough:—He has undertaken to inject, when it was not asked for by any question of mine, the statement to the jury that Lloyd used the green bark, and we used a dried bark; and therefore the dried bark was of no account; when, as a matter of fact, he knows nothing about what Lloyd used, except what he says Lloyd told him; and Lloyd's own statements are published and are contradictory of what he says Lloyd told him.

The Witness:—No, sir—

Mr. Scofield:—No. I object to that statement. Lloyd's publications do not contradict what he said.

THE COURT:—What you read does not contradict it, as to viburnum prunifolium.

Mr. T. J. Scofield:—No.

Mr. Hough: Q.—Don't you know that to be a fact—

Mr. T. J. Scofield:—I object to that.

Mr. Hough:—That Lloyd—

Mr. T. J. Scofield:—Go ahead and ask the question.

Mr. Hough: Q.—Don't you know it to be a fact that Lloyd's Specifics are sometimes made out of green barks, and sometimes out of dried barks, and sometimes out of partially dried?

Mr. Scofield:—I object to the question, if the Court please.

THE COURT:—He may answer that, if he knows.

Mr. Scofield:—I object to it, unless he asks in regard to viburnum, if the Court please. Lloyd's Specific is a name that is applied to a very great many different medicines.

THE COURT:—I am letting him answer because the answer is perfectly harmless; it has nothing to do with this case—a general answer like that.

To which ruling of the Court the defendants, etc., excepted.

Mr. Hough: Q.—Do you know that that is a fact? *A.*—Repeat your question, please.

Q.—That in many instances dried bark is used, in many instances, and green bark in many instances, and in many instances the partially dried bark? *A.*—Yes, sir.

Q.—And that there is no rule of thumb applicable to that question in plant pharmacy—

The Witness:—Yes, but—

THE COURT:—In general, there is no rule that will cover all drugs?

The Witness:—No rule that will cover all the drugs—certainly not.

Mr. Hough: Q.—Now, is it not a fact that the bark of the root, stem and branches of the black haw are medicinal, so the root is preferred by eclectics? *A.*—I presume there is virtue in all parts of it; I don't know.

Q.—Now, is it not a fact that three drops of the Specific Tincture represents three grains of the drug? *A.*—Practically, yes.

Q.—And the dose is from three to five drops of the tincture; is it not? *A.*—Yes; diluted, yes, sir.

Q.—Now, the—is it not a fact that water, or alcohol, extracts the properties of the viburnum prunifolium? *A.*—No, sir; water will not extract it.

Mr. Hough:—Now, he has stated that this King's American Dispensary is an authority; and I ask to read the statement of Mr. King.

Mr. Scofield:—No, he has not said it was an authority.

THE COURT:—He did not state that he relied upon it.

Mr. Hough: Q.—Didn't you say you regarded that as an authority in your school? *A.*—No, sir; I did not make that statement.

Mr. Hough: Q.—Wasn't it, by resolution—

THE COURT:—Now, Mr. Hough, you may save the point; I don't want you to read this before the jury, because you are getting in indirectly before the jury things that I am unwilling to let you put in directly. When you read that resolution—it is very easy to get things into the mind of the jury, and very difficult to get them out.

Mr. Hough:—I was not going to get anything into the minds of the jury—I did not want to get anything into the minds of the jury; I was just going to ask this witness if his school did not adopt this.

THE COURT:—Suppose the school had?

Mr. Hough:—And you mean he discards it?

THE COURT:—No—he may or may not. He says now that he does not rely on it.

Mr. Hough: Q.—You don't regard it as an authority on this point? *A.*—Not now. Many things have changed, and that has been out ten or fifteen years. That was written years ago. Much has been changed.

Q.—Was there ever a time when water would extract the properties of viburnum prunifolium? *A.*—Not all of the properties.

Q.—Is it not a fact that the leaves of the black haw have been used for tea, made with water only? *A.*—I don't know.

Q.—Isn't that the way it originally started, as a home remedy? *A.*—am sure I don't know.

Q.—Well, upon what do you base the statement that the properties are extracted only with higher per cent. of alcohol than 20 per cent? *A.*—By talking with Professor Lloyd, who has made a study of these plants, and the method of extracting the virtues of them, for fifty or sixty years—fifty years, I presume.

Q.—And that is all you know about it? *A.*—Yes, sir, I am not a pharmacist myself.

Q.—Then, as a matter of fact, you don't know whether less than 46 per cent. would extract all the properties or not, do you? *A.*—Not personally.

Q.—When did you talk with Professor Lloyd on the subject? A.—Last week.

Q.—Last week? *A.*—Yes, sir.

Q.—That is after you knew you were coming up to testify? *A.*—Yes, sir.

Q.—And you talked with him in order to enable you to testify in the case? *A.*—In order to know the amount of alcohol that was in—yes, sir.

Q.—That is a different proposition, the amount of alcohol that is in his medicines is stated on the bottle, 46 per cent. Do you mean to say that Professor Lloyd told you that nothing less than 46 per cent. would extract the virtue? *A.*—He stated that they used the smallest amount of alcohol possible to extract the virtues, and maintain it—preserve it — the smallest amount possible in the Specific Tinctures were used to extract the virtues of the root and preserve it.

Q.—Don't you know, as a matter of fact, that the method—that the process of manufacture for their medicines is secret, and nobody but them knows how it is done? *A.*—To some extent.

Q.—And all you do is buy these bottles in a drug store, or write your prescription for them? *A.*—No, sir. I know that these Specific Tinctures possess a virtue that many of the remedies under the same name do not possess, because they are made differently.

Q.—I say, don't you, as a matter of fact— *A.*—Many of them are inert, when they are not prepared in that way.

Q.—You stated that the cnicus benedictus contained 74 per cent. alcohol, didn't you? *A.*—No, sir.

Q.—Did you say that you knew what it contained? *A.*—No.

Q.—Did you say you had never seen it? *A.*—No, sir.

Q.—Can you identify this as a bottle of Lloyd's Cnicus Benedictus?

Mr. T. J. Scofield:—I object to that, if the Court please. That is the same sort of purpose that he is following through this case, in reading from the book—

THE COURT:—The objection is sustained, because how can he know? The label may say it does; he knows nothing except what he sees on the bottle.

To which ruling of the Court the plaintiff, etc., excepted.

The witness testified that he could not identify the bottle. The witness does not believe that anyone but a physician can buy Lloyd's specific in a drug store. The witness knows of Dr. J. William Fyfe. He has read to some extent Fyfe's book on "Modern Materia Medica and Therapeutics." He has not had the book in mind in giving his testimony. It is not a fact that in order to get the most beneficial influence from viburnum prunifolium in cases of threatened abortion, small doses must be given after conception until the fifth month of pregnancy unless certain conditions call for it. There might be conditions in which such treatment might be of value.

The amount of the alcohol in the medicine is dangerous in gonorrheal inflammation depending on the quantity of alcohol given. The witness does not believe that there is any difference in giving the patient 96 drops of whisky or in giving 48 drops of alcohol in five times that amount of water. There might be a difference in the physiologic effect of the two mixtures.

The witness then stated that practically all the tonics used by the eclectic school are made up with alcohol. Alcohol could not be deleterious in the dosage given.

The witness does not know the amount of alcohol that a person can freely oxidize in the system. In the treatment of gonorrhea, the witness does not use drugs in combination with alcohol. He uses local treatment. When he uses general treatment, he uses it for general symptoms.

The witness stated that only a small percentage of girls need treatment during puberty.

He has been called in cases of puberty to give medicine which he gave to correct the conditions which were responsible for the absence of the menstruation. He has given nux vomica, 5 drops to 4 ounces of water three or four times a day, usually only continued for a day. He has also given pulsatilla and gelsemium and other specific tinctures.

The witness stated that when women have trouble during menstruation they think of taking medicine. For hot flashes, he gives pulsatilla; if there is headache, he might give gelsemium, the treatment might be continued for a longer or shorter period of time.

The witness has not given alcohol in diabetes and he considers that opinion is divided as to its use as a food. The witness stated that the words "female complaints" might include leukorrhea or any of the conditions last mentioned and associated with the female generative organ.

All cases of malpositions of the uterus produce uncomfortable symptoms or are accompanied by inflammation. Dr. Thomas has given drugs during pregnancy to treat constipation, for nervous disturbances, etc. Not all of them are given any alcohol.

Q.—Now, when a woman has had a miscarriage previously, and fears a miscarriage at the next conception, what medicine or what treatment do you give them? *A.*—That would depend altogether on her general health. If her general health was good, I don't know that I would give her any medicine. If her general health was good, I would simply tell her to keep quiet as she approached that time—if she needed any medicine, she would have it. If there was any special call for medicine, she would have it.

Q.—As she approached what time? *A.*—As she—if she had had a miscarriage several times and she was pregnant again, when she approached that time she had it—

Q.—That is, the disposition is to miscarry at the same time, the tendency is— *A.*—Often it is, yes—the tendency is that, after a few miscarriages.

Q.—Now, suppose her condition was a little run? *A.*—She might have tonics, to sharpen the appetite.

Q.—How soon would you commence it? *A.*—Whenever that condition was present, whenever she began to complain that her bowels were not moving, or her kidneys were not working, or the digestion was not good. That would precede and accompany the run down condition, and she would be treated for those conditions.

During pregnancy, he would give natural tonics, fresh air, or exercise and medicinal tonics if they were needed. The tonics contain alcohol.

REDIRECT EXAMINATION BY MR. T. J. SCOFIELD

The witness testified that in each dose of the tonic given there would be about one-tenth of a drop of alcohol.

Adjournment was taken until 2 o'clock the same day.

May 8, 1916, Afternoon

TESTIMONY OF DR. R. L. THOMAS (*continued*)

The court met pursuant to adjournment.

RECROSS-EXAMINATION BY MR. HOUGH

Dr. R. L. Thomas stated that the largest percentage of alcohol in any medicine which he has ever used would be a dram in 4 ounces, about one-sixth of a drop at a dose. He does not prescribe whisky or brandy, and has not prescribed any gin in twenty-five years.

TESTIMONY OF MR. J. E. KEETON

Mr. J. E. Keeton was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. WALDO

Mr. J. E. Keeton testified that he is sheriff in Calbert County, Alabama. He resides in Tuscumbia. He has had experience with Wine of Cardui.

Q.—Now, take your own time, and in your own way, and in your own language state to the court and jury what that experience has been. *A.*—Well, I had an experience with my wife. I gave it—my wife was taking Wine of Cardui for six years.

Q.—For six years? *A.*—Yes, sir; and she had taken it for whites and falling of the womb, and irregular monthly periods and she had taken it, she first began to take it about six years ago, probably a little more or a little more or a little less than six years ago, but right around six years ago, she began to take it in doses—from you know, a tablespoonful from one to four times a day and she got to increasing the doses on and on, and—well, she increased the dose and about four years ago we had a miscarriage in our family, and she grew worse all the time after that and she then increased the dose until she was taking something like half a tableglassful, something like one half of a tableglass, you know.

Mr. Keeton stated that his wife had been taking Wine of Cardui before the miscarriage occurred. She had been taking it between four and six months. After the miscarriage she discontinued for a couple of months and then began taking it again. The wife of Mr. Keeton is now dead. Dur-

ing her illness she saw Dr. Greer and Dr. Palmer. She was not at any time operated on. Mr. Keeton's wife took between 50 and 100 bottles of Wine of Cardui during six years. The witness was asked how his wife happened to begin taking Wine of Cardui.

A.—Well, she began to read the Ladies' Birthday Almanacs—and besides other older women told her and me both, that was the reason she began taking it.

Mr. Walker:—I move to strike that out.

THE COURT:—Strike out the matter of the advice from older women. You saw her read the almanacs? *A.*—Yes, sir.

Q.—And the literature of the Chattanooga Medicine Company? *A.*—Yes, sir.

Mr. Waldo: *Q.*—How long ago was that, Mr. Keeton?

Mr. Walker:—Your Honor, my objection particularly went to the reading of the literature.

THE COURT:—We will strike out of the record the witness' conclusion, that that is why she began. The fact that she read the literature of the plaintiff company may stand.

Mr. Walker:—Yes, and the fact that she talked with older women, which is his conclusion as to the reason why, that it was the result of that.

THE COURT:—That is stricken out.

Mr. Walker:—And the other stands, I take it?

THE COURT:—Yes.

Mr. Walker:—All right.

Mr. Waldo: *Q.*—Do you say that you and your wife read the Ladies' Birthday Almanac together? *A.*—Yes, sir.

Q.—How long after that reading did she begin the taking of Wine of Cardui? *A.*—Oh, I could not say, right after that.

Q.—Did she take it continuously from that time on, or only at periods? *A.*—Off and on, you know. She did not take it regularly, just owing to her feelings, you know.

Q.—Up to within what time of her death did she continue to take Wine of Cardui? *A.*—I could not hardly say, probably two months.

Q.—How long has she been dead? *A.*—Since the 23d of January.

CROSS-EXAMINATION BY MR. WALKER

On cross-examination Mr. Keeton stated that he and his wife read the Ladies' Birthday Almanac almost every year. He knew of two women with whom his wife talked who advised her to take Wine of Cardui. He was present when she talked with the women. They told her it was good medicine for female troubles. Mrs. Keeton was 38 years old when she died and 19 when she married. She had been suffering for almost a year before she began to take Wine of Cardui. This was between five or six years ago. She first began complaining of female trouble when 25 and would have a doctor when she needed him. Drs. Palmer and Greer were their family physicians and attended Mrs. Keeton just before her death. Mrs. Keeton would not have trouble at every menstrual period. The Wine of Cardui was purchased from Drisdoll's drug store in Tuscumbia. Some was bought from the Palace drug store. The witness bought Wine of Cardui in six bottle lots. He does not know how long it would last. The last time he purchased it before his wife's death was in October. He bought either two or three bottles. He does not know how many were left after she died. The duration of his wife's last illness was six months. Her trouble was cancer of the womb. This last answer was brought out after a statement by the Court to the effect that he wished to correct the ruling made on direct examination, namely: a man is entitled to tell as a matter of family history what the matter with his wife was and he may tell how long her last illness was and what she died of.

REDIRECT EXAMINATION BY MR. WALDO

Mr. Waldo asked the witness for what condition Mrs. Keeton saw Drs. Palmer and Greer. Objection was made to the question and sustained.

TESTIMONY OF DR. WILLIAM HENRY GREER

Dr. Greer was called as witness for the defendants.

DIRECT EXAMINATION BY MR. WALDO

Dr. Greer testified that he resides in New Decatur, Ala. He has been practicing medicine sixteen years. He graduated from Grant University, Chattanooga, Tenn. He has been practicing medicine in Alabama all the time since he graduated with the exception of one year in Oklahoma.

The witness had had experience with Wine of Cardui in his practice. The first case was a girl, Miss A. I., 15 years old. She was suffering from amenorrhea and had been taking Wine of Cardui for two years without relief. She was suffering intense pain in the abdomen and had ecchymotic spots all over her body. She had convulsions. He found atresia of the vagina and made an opening into the womb and relieved her temporarily until she could be taken to the hospital and operated on, and on opening the abdomen the uterus was found enlarged and filled with blood. One tube and ovary were removed and the patient made a good recovery.

THE CASE OF MRS. KEETON

The next case was that of Mrs. Keeton, wife of the previous witness.

A.—I saw Mrs. Keeton off and on for the last six years; that is to say, I would be called into the family, to see some other member of the family—other members of the family.

Mr. Loesch:—The witness is suffering from a throat affection.

The Witness:—I am sorry to put you to all this trouble. I will say that it is about two years and a half ago. Mrs. Keeton called my attention to her menstrual disturbances and I told her, I said, "Well," I said, "Probably you had better come to the office or I will examine you here at home and we will see what this trouble is." She said she had been troubled for several years. She said, "Well," she said, "The boy is sick now, and we will wait. I am taking Wine of Cardui, and I will see what it does for me." Well, I did not press the matter.

At other times she mentioned it to me, probably at some neighbor's house, or something was said and she was coming to have a treatment. She did not do it.

About eight months ago they called me to the home and I made an examination, an instrumental examination and I found a cancer of the cervix, probably the beginning of a cancer of the cervix, and I advised an immediate operation. She refused and persisted in taking Wine of Cardui. Doctor was called in and made an examination, and either went with her or sent her to Memphis, where Dr. G. M. Holder made the same diagnosis and told her that he could not do anything for her. It called for an operation. That was probably five or six weeks after I saw her. She returned to her home, and I went from Decatur down there several times to see her and she died in January of carcinoma of the uterus.

Mr. Waldo:—That is—carcinoma of the uterus?

THE COURT:—I cannot understand whether there was an operation performed.

The Witness:—No, sir; nobody would touch it.

Mr. Waldo: *Q.*—Why wasn't there an operation performed? *A.*—Well, she seemed to have faith in this medicine, that she was taking.

Mr. Walker:—I move to strike that out.

THE COURT:—Strike it out.

To which ruling of the Court the defendants, etc., excepted.

Mr. Waldo: *Q.*—I mean this, Doctor— *A.*—I answered that question previously that it was at an operable stage, before.

The next case was that of Mrs. J. E. W., who said she had taken considerable Wine of Cardui. She had two or three miscarriages and he did curettement after each miscarriage.

The daughter of Mrs. J. E. W—— developed chorea. When she consulted the doctor he advised her to quit taking Wine of Cardui, gave her tonics, advised rest in bed, gave her a diet and laxatives and she became well.

Q.—Now, have you another case, Doctor, that you remember of? *A.*—I have plenty of cases, but the next one I would give you is Mrs. W—— G——. I have her word for it, I have this as part of the clinical history of the case. She came to me after she had had an operation in Birmingham. She was very nervous and very much run down and she was suffering considerable pain in the abdomen.

From my examination I found that her abdominal contents were sagging very low and I inquired—she looked like an alcoholic and she said, "Yes," she says, "I drink some whisky." I found that she had been a sufferer for many years. She was a widow at that time, and after she had married her husband had had her operated on. She said that she had had this female trouble a long time. She took this Wine of Cardui and took some whisky with it.

Mr. Walker:—Took some whisky along with it? *A.*—Yes, I considered her an alcoholic case probably brought on from—

Mr. Walker:—That is objected to.

The Witness:—From the use of this medicine.

Mr. Walker:—I move that that be stricken out.

Mr. Waldo:—Just state what you know of the case, from your own experience with the case.

Mr. Walker:—That is out then?

The Witness:—Well, from the history, from the history she gave and from my observation, I considered it such a case.

Mr. Waldo: *Q.*—How long had she been taking Wine of Cardui? *A.*—I could not tell you.

Q.—She did not say? *A.*—No, sir.

Q.—What became of her, doctor? *A.*—Well, I had—I put her on some tonic and put an abdominal supporter or binder, a strong binder on her and rested her up in bed about a month, and she improved, I do not know to what extent. But she improved materially. She quit her habit.

Q.—Is that all the experience you have had with Wine of Cardui in your practice? *A.*—No, sir; that is not all the experience I have had.

Q.—Do you care to tell any other experience? *A.*—Well, I do not think it would be necessary.

CROSS-EXAMINATION BY MR. WALKER

On cross-examination, the witness gave in detail the names and residences of the patients mentioned on direct examination. He described in detail the various points mentioned in the direct examination.

In the case of Mrs. G——, to whom he gave tonics, he gave strychnin, arsenic, hypophosphites and phosferrol. The witness testified that he came to Chicago about April 22, stayed three days and went home, stayed home three or four days and then came back to Chicago. He first saw Mr. Keeton in Chicago on May 7. He, himself, spoke to Mr. Keeton about testifying for the American Medical Association. The witness belongs to his county and state societies and to the American Medical Association. He has had THE JOURNAL ever since he graduated. He read the articles on Wine of Cardui. He received a letter from Dr. Perry, secretary of the state association. He first met Dr. Heizer about two years ago in Sheffield, Ala. He had not received any communication from the American Medical Association asking him to help defend this suit.

Q.—When did you first know that the American Medical Association had been sued as a result of the articles that they published against Wine of Cardui? *A.*—When I realized it fully was when Miss Ervine came to my office asking—

Mr. Walker:—I am just asking you for a date.

Mr. Waldo:—Let the witness answer.

Mr. Loesch:—He has a perfect right—

Mr. Walker:—I called for a time. I asked him when and he started to tell me.

Mr. Loesch:—He started to fix the time by your woman detective coming around.

Mr. Walker:—Oh, now, here, here.

THE COURT:—When calls for a date.

Mr. Walker:—Yes. It don't call for anything else.

Mr. Waldo:—If that is the only way he can fix the date, I think he has a right to say it.

Mr. Walker:—If he cannot tell the date he can tell me so. (Addressing Mr. Waldo), Pardon me for being in front of you.

Mr. Waldo:—Excuse me for being behind you.

Mr. Walker:—Oh, that is all right, that is where I like to have you. What I would like to ask you, Mr. Juror—or Mr. Witness—is for the date. *A.*—I could not give you any date.

REDIRECT EXAMINATION BY MR. WALDO

Q.—From whom did you first learn—I withdraw that. By whom were you first approached to become a witness in this case?

Mr. Walker:—That is objected to.

THE COURT:—He may answer.

To which ruling of the Court the plaintiff, etc., excepted.

A.—Well—

THE COURT:—That calls for somebody's name. *A.*—Now I modify my answer in the way—

Mr. Walker:—You see, "approached to become a witness."

Mr. Waldo:—In this case.

Mr. Walker:—That calls for something that somebody said to him. It assumes from their own witness that he was approached by somebody to become a witness.

THE COURT:—You brought that out in a way in your question about Mr. Heizer. "When did you first hear about this case?"

Mr. Walker:—And that is on cross-examination.

Mr. Loesch:—Why—

Mr. Walker:—I have a right to assume on cross-examination, but I do not understand that they have, with their own witness.

Mr. Waldo:—They brought out the fact that their own emissary had been down to see this witness before he had seen Mr. Heizer.

THE COURT:—What difference does it make, gentlemen?

(Witness excused.)

TESTIMONY OF DR. EDMUND WEARING SIMMONS

Dr. Edmund Wearing Simmons was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. WALDO

Dr. E. W. Simmons testified that he is a physician practicing in Summerville, S. C., and a graduate of the Medical College of South Carolina and has been in practice eleven or twelve years. He has had some experience with Wine of Cardui.

Mr. Waldo: Q.—Doctor, will kindly state to the jury what that experience has been? *A.*—Well, the first case, I was called to see a woman who was supposed to have taken morphin. She was about six miles from Summerville, and when I got there I found on examination that the woman was practically under the influence of alcohol, acute alcoholism. I then administered a hypodermic of apomorphin and caused her to vomit, and when I did so, her husband, who was very much worried before, said: "Just a common drunk."

Mr. Loesch:—We will have to withdraw the witness if he cannot do better than that.

Mr. Walker:—I think it is more dialect than the voice.

Mr. Waldo:—We have no dialect in the South, sir.

Mr. Walker:—Well, it is something very much like it.

THE COURT:—Talk louder and slower so that everybody will be able to hear you.

Mr. Walker:—I think he is talking French.

Mr. Waldo:—Go ahead, and try to enunciate distinctly. *A.*—He simply said "plain drunk" and went out of the room. I inquired what she had taken and I found she had not any whisky there, but there was a bottle on a shelf near the bed, it was a bottle of Wine of Cardui, I asked her if she had been taking it, after about an hour and a half or so—if she had been taking this.

Mr. Walker:—That is objected to.

Mr. Waldo:—He says that it was an hour or two afterwards that he asked her.

The Witness:—I asked her what she had taken and she said she had taken this, about two-thirds of the bottle—about two-thirds of the bottle had been used.

Q.—Two-thirds of the bottle? *A.*—Two-thirds was empty and one-third was in the bottle. One-third was in the bottle on a shelf near the bed.

Q.—Of what? *A.*—Wine of Cardui.

Q.—Go ahead. *A.*—I asked her if she had been taking that all the time and she said she had been taking it for—about six months, and in regard to this she said that the usual dose was about a tablespoonful but she had gradually taken it in larger amounts, just from the bottle, no particular amounts, and that she had taken that probably that same day, two-thirds of the bottle, within a few hours probably.

Mr. Walker:—He says that she probably had taken it—

THE COURT:—Strike out the probabilities, Mr. Reporter. Did she tell you on that occasion how much she had taken? *A.*—No, she did not, sir.

Mr. Waldo: Q.—Didn't tell you how much she had taken out of that bottle? *A.*—No, sir. Only what I saw in that bottle—just taken that day.

Q.—She told you she had taken all except what was in the bottle that day? *A.*—Practically, yes.

Q.—What became of that woman? *A.*—That was the last I saw of her. She was just a transient when I saw her, and I have not seen anything further of her.

Q.—Have you had any other experience? *A.*—The case of a child about thirteen years old, a case of amenorrhea. I was called to see her and she was suffering from cramps. She had had a certain period, but she never had menstruated, they never had appeared. That was a case practically of hookworm. She had been taking Wine of Cardui for them, and I asked her if she had taken Wine of Cardui, and she had at these periods. I gave her the hookworm treatment and in the course of a few months, the periods were established. That is practically all the experience I have had.

Q.—How long had she been taking Wine of Cardui?

Mr. Walker:—That is objected to.

A.—Probably—

THE COURT:—What did she tell you? *A.*—Her mother told me about a year, a year to eighteen months, a year to eighteen months.

Mr. Waldo: Q.—What became of that patient? *A.*—She got all right.

Q.—Is that the limit of your experience with Wine of Cardui? *A.*—Practically the limit; yes, sir.

CROSS-EXAMINATION BY MR. WALKER

The witness testified that he commenced practice immediately after graduation. He sees practically 50 or 100 cases of menstrual disturbances in women and perhaps one third of these are young girls at puberty.

The first case he treated in 1910. The family were transients working temporarily on a farm. They live in a little hut. There was one child in the family. The woman was about 28 or 30 and did not have hookworm so far as he knew. The woman was under the influence of alcohol. He understood from the woman that she had taken Wine of Cardui that day. He saw her about 10 o'clock at night. He did not notice that there was a whisky jug in the hut and the patient told him there was none. The witness testified in detail concerning the operation of the patient. He was then cross-examined in detail concerning the case of the child with amenorrhea.

The witness testified that he came to Chicago at the request of Dr. Heizer after he received a communication from Dr. Hoyne, secretary of the state medical society. The witness came to Chicago on April 25 and left the day after Mr. Patten's death. He returned on Thursday night previous to testifying. The witness has heard of Wine of Cardui being used in menstrual disturbances all during his practice.

TESTIMONY OF DR. J. G. VANCE

Dr. J. G. Vance was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. WALDO

Dr. Vance testified that he resides in Marvel, Ala. He graduated from the Birmingham Medical College in 1905. He practiced two years in Warrior, Ala., and later at Marvel. He has had experience with Wine of Cardui in his practice. In reciting the history of his cases he referred to notes.

His first case was Mrs. D. H., a white woman, aged 40, suffering from hemorrhages at menstruation periods. She had a laceration of the perineum and a prolapse of the womb and she had four living children and had had eight miscarriages. She had received medical attention at each miscarriage. The patient stated that she had taken some six bottles of Wine of Cardui without relief. He saw her in 1914.

The Witness:—The next is Miss Ira H——. I will give you these names after I get down from the stand. White; age 34; pellagra, my diagnosis. I was called during the fall of 1913 to see this woman. Her mother gave the history of her having a hemorrhage at each menstrual period; her menses staying all the way from ten days to two and three weeks. She had been menstruating at this rate between two and three years.

I examined her. I did not make a digital examination. I noticed the redness of her hands and forearm. After that I got her history, a history with reference to a sore mouth and upset stomach. I made a diagnosis of pellagra, and put her on the treatment accordingly. At that time we did not know very much about the diet treatment of pellagra, but I put her on a nourishing diet because I felt that that was the thing to do. In addition to that, I put her on the arsenic.

This woman made a recovery. Today she is not having any hemorrhages at her menstrual period; and since Dr. Goldberger's theory came out with reference to diet, of course, I put her on forced diet, and she has improved. She is not a well woman, because her financial condition—her mother's financial condition is such that they cannot get nourishing food and a proper diet.

Mr. Waldo: Q.—Well, doctor, in that case did Wine of Cardui form any part of the clinical history which you got from her? *A.*—It did.

Q.—What part did it form? *A.*—Her mother got a bottle for her, and she took three doses, and it made her so dizzy—well, as she said, expressed it, it just made her drunk; so her mother told her not to take it.

Now, I will give you another—

Q.—Did she take any more, Doctor? Do you know? *A.*—Just the three doses. She took it all in one day.

The next case was Mrs. J. B——, a white woman, aged 35, he saw in 1914. She complained of pain in the lower part of the abdomen at the time of the menses. She had practically the same symptoms as those of her sister, the previous case, although she was better nourished. She had taken some three or four bottles of Wine of Cardui consecutively for pain in the abdomen. She, like her sister, stated that it stimulated her and made her face feel flushed and made her dizzy. She said that she seemed to forget that she had the pain around. While he did not make a positive diagnosis, symptoms showed that she had pellagra, and he put her on forced feeding.

The next patient was L. W——, colored, aged 35, whom he saw in 1915. She suffered with pain in the region of the appendix and ovaries at the menstrual periods. On examination he found a mass on the left side and a smaller mass on the right side and he told her that he thought she had a fibroid tumor. She went to a hospital and was operated on. She gave a history of having taken seventeen bottles of Wine of Cardui without any relief over a period of a year. The patient is well today and working in a camp at Marvel, Ala.

The next case is M. K., colored, aged 36, whom he saw in 1908. She complained of flooding and of pain on both sides during the menstrual period. On examination, he was convinced that she had pus tubes and advised operation. The patient was operated on in 1912, both tubes and both ovaries being removed. She had taken six bottles of Wine of Cardui without relief.

The Witness:—I asked her if she had taken any medicine, and she said she had taken this Wine of Cardui, six bottles. When I asked her if she had taken anything else, she said yes, she took whisky when she could get it, but her husband did not like to have her take whisky, she said, and took this Wine of Cardui, because she got practically the same benefit from taking Wine of Cardui as she did from the whisky. This woman, as I said, was operated on in 1912, and she is a well woman today, doing her own work.

The next case is Mattie D.——; colored; aged 30. I doubted that age, but she gave me that as her age; and I, of course, had to put it down.

Mr. Waldo: Q.—How old did you think she was? *A.*—She looked to me to be about 36 or 38; but you cannot tell much about a nigger's age; I will be frank with you there.

I saw this woman in 1914. She gave me a history of smothering, and especially did she give that history of smothering if she ate anything after four or five o'clock in the afternoon. Her food, she said, did not seem to sit, and it lay very heavily on her stomach. In questioning her with reference to taking medicine, she said that she had taken nothing other than Wine of Cardui, except an occasional bottle of some form of pepsin. I believe it is syrup of pepsin—but I am not positive. Anyhow, it is bought in any drug store. It is just a laxative with some pepsin in it.

She had taken this Wine of Cardui for a period of eight years, if I am not mistaken—I think I have that down. Yes, a period of eight years, and no relief, other than a very happy feeling when she would take this Wine of Cardui.

She gave a suspicious history of possibly syphilis, so I sent her to St. Vincent's Hospital and had a Wassermann reaction made for syphilis, and it was positive, plus 4. She was given intravenous injection of salvarsan with follow-up treatment of mercury. This woman returned to our place, and she is living there; and from a woman of about 130 pounds, she weighs about 180 pounds at the present time. She has no trouble to amount to anything with her digestion at the present time.

I do not know whether this would be worth anything or not, but the intern at the hospital told me that—

Q.—Never mind what the intern told you. *A.*—Well, it is all right then.

Q.—You said you sent her to St. Vincent's Hospital? *A.*—St. Vincent's Hospital, Birmingham, Ala.

Q.—That is over on Red Mountain? *A.*—Yes, in Birmingham.

The next case was Mrs. G. R——, white, aged 31, whom the witness saw in 1911. She had flooding at every menstrual period since 1906. She was advised by a wandering herb doctor to take Wine of Cardui, which she took without relief. She had taken three and a half bottles over a period of eighteen months.

The next case was R. W——, colored, aged 35, whom he saw in 1915. From the symptoms, and examination, he diagnosed tuberculosis. The patient had taken Wine of Cardui. She had read one of the Wine of Cardui books and stated after reading this she thought that she had had everything in there and that the medicine would cure her.

The next case was L. H——, now dead, whom he saw in 1913. She told him that she had been menstruating for over two weeks and was wasting away. He examined her and found a cauliflower-like growth on the mouth of the cervix, and suspected cancer. The patient stated that she had taken six bottles of Wine of Cardui. She went to the hospital and was operated on. A microscopic examination showed cancer. The patient lived nine months after she was operated on.

The next case is A. F——, a negro, aged 41, complaining of pain in the lower part of the abdomen. There was distention of the abdomen and cessation of her menses of about three or four months. The witness saw her in 1915. On examination he found a growth on the left side, also one on the right. The patient was operated on for the removal of a pus tube on one side and a fibroid tumor on the other. The patient gave a history of having taken three and one-half bottles of Wine of Cardui without relief.

The next case was Mrs. H. B., whom he saw in 1905. She had been confined five or six months previously. At the time of confinement she had had fifteen convulsions. During pregnancy she had taken Wine of Cardui, as it had been recommended to her to make her pregnancy easier. She had taken it three or four months prior to the birth of the child, and she also took some after the birth of the child. On examination he found a complete laceration of the perineum. She went to Birmingham and was operated on. In 1907 she was again confined, although this time she had taken no medicine other than laxatives. She had an entirely normal delivery.

The next case was a Mrs. M. H., a sister of this patient whom he saw in 1907.

The Witness:—Mrs. M—— H——. On the morning that I confined Mrs. H—— B—— I received a call to the commissary of the

Sibley Brothers Coal Company at Warrior, to come there quickly, as a woman had fainted in the store. When I arrived, I found this woman lying on the floor. She was unconscious and did not know anything. I recognized her, knew where she lived and called a buggy and sent her home.

I left treatment for this woman. I recognized her condition as being serious, as she was bordering on puerperal convulsions. I left her and returned to my home. On arrival at my home I had a call from this woman's sister, Mrs. H—— B——, whose case I have just gave, and went there to confinement. While I was at Mrs. H—— B——'s, I got another call to come back to Mrs. M—— H——. I could not go, and another physician went and confined Mrs. M—— H——.

Mrs. M—— H—— died. I saw her about two hours after her death; she was jaundiced; very much swollen: her feet and legs were swollen, her face and hands were swollen; she died in convulsions.

Mr. Waldo: Q.—Now, did Wine of Cardui constitute any part of the clinical history of Mrs. M—— H——? *A.*—I only know what her sister——

Mr. Walker:—I object to it.

THE COURT:—You were sent for by the sister?

The Witness:—No, I was sent—

Mr. Walker:—He found her in the store, and she was sent home, and then he went to the sister's house and was sent for from there by Mrs. M. H——.

THE COURT:—Well, if he got the information from any member of the family during the time he was treating the patient, I would say that he could give that history; but, if he received it at some other time, why then it must necessarily come within the hearsay rule.

The Witness:—Well, I received this—your Honor, I received this information about two hours after I visited this woman, from her sister.

THE COURT:—Well, she was still alive?

The Witness:—Yes.

THE COURT:—And the information was given you for the purpose of enabling you to treat her?

The Witness:—I asked her if she had received any treatment from any one at all, and she said—

Mr. Walker:—I object to that.

THE COURT:—Yes, tell just what she said about Wine of Cardui.

The Witness:—She said she had taken some Wine of Cardui; that is all the treatment she had received.

Mr. Hough:—Well, the sister's statement is hearsay. She would not be competent to testify.

Mr. Walker:—He never went to treat this woman, he found this woman in a store.

Mr. T. J. Scofield:—He gave her treatment.

Mr. Walker:—No, no.

Mr. Hough:—It is not competent, but let it go.

THE COURT:—He never had an opportunity to treat her. As a matter of fact, the sister saying she had taken the Wine of Cardui, not knowing when and what amounts, the testimony is negligible anyway. It may be stricken out.

To which ruling of the Court, the defendants, etc., excepted.

The next case was that of Mrs. J. O——, whom he saw in 1908, a confinement case. The woman stated that she had had difficulty in carrying the child. She had received no other treatment than the taking of Wine of Cardui. He advised operation which she did not have and the last heard of, she was still in the same condition.

The next case was H. G. B., a man, whom he was called to see in 1908.

The Witness:—H. G. B——. His residence was at that time in Birmingham. I was called in 1908 to see this man, who wanted me to give him something to stimulate him, brace him up, so that he could go to work. He was a painter, under contract, painting the houses for the Roden Coal Company at Marvel, Ala., at that time. It had been several days since he had been at work, and he wanted something to brace him up, so that he could go back to work.

I asked him what he had been taking, and he said he had been taking whisky. When he could not get whisky, he would take Wine of Cardui.

Mr. Walker:—I move to strike it out.

Mr. Waldo: Q.—Did you ascertain how much Wine of Cardui he had taken, doctor? *A.*—I did not.

Mr. Walker:—Wait a minute. He had not been taking any then. He had been taking whisky. He had been taking whisky, I move to strike it out.

Mr. Waldo:—We will find out on this particular case. Q.—Did he state whether he had been taking Wine of Cardui or whisky? *A.*—Well, I could not say, at that particular period. He told me that he had taken Wine of Cardui, but he did not tell me at that period. He said—well, at that time, we were supposed to be dry, especially in that county.

Mr. Waldo:—What county in Alabama? *A.*—Bibb County.

Q.—Bibb County? *A.*—It was pretty hard to get whisky—

Mr. Walker:—I object to that, unless the man told you; and then it would not be competent.

Mr. Waldo: Q.—Did you see this man at Birmingham? *A.*—I have seen him in Birmingham.

Q.—But on this occasion, when he was suffering from— *A.*—I saw him at Marvel, Bibb County, Alabama.

Q.—Did he state at that time whether part of the spree had consisted of drinking Cardui? *A.*—He did not.

Mr. Walker:—That is objected to.

Mr. Waldo:—He said he did not; you ought to be satisfied.

Mr. Walker:—Well, he answered over my objection, and I don't know why that should make me content.

THE COURT:—Go ahead please, we are going to stop in a few minutes.

The next case was J. W. G——, whom he saw in 1910.

The Witness:—Mrs. J. W. G——. I was called to see her in 1910. I cannot say just exactly when in 1910 I saw her; but when I reached her I found her rolling and tossing from one side of the bed to the other; in a very filthy condition; had been spitting on herself; and she resembled a woman who had been on a drunk.

I could get no history from the woman, because she was in such a muddled condition that she could not give any account of herself.

On inquiry from her husband as to what she had taken, he produced a bottle of Wine of Cardui, and he said she had taken that.

Mr. Walker:—I object to that.

THE COURT:—This was at the time when you called?

The Witness:—At the time, your Honor.

THE COURT:—Was the bottle empty, or did it have the medicine in it?

The Witness:—Just about half—half full.

THE COURT:—Very well.

To which ruling of the Court the plaintiff, etc., excepted.

Mr. Waldo: Q.—Is that all of your cases, doctor? *A.*—One other case.

Q.—Let us have it. *A.*—Mrs. M. J. S.——. I saw this woman in 1910.

Q.—Go ahead, Doctor. *A.*—I saw this woman in 1910, and she was drunk. When I went in the room, she was standing upon the floor, had a bottle of Wine of Cardui in her hands, and just as I went in the door she drank some Wine of Cardui out of the bottle. I only saw this woman drink Wine of Cardui this one time. I do not know whether she became drunk from drinking this Wine of Cardui or not. I do know that she had been drunk at different periods during her residence at that place.

Q.—Did you say you saw her drink the Wine of Cardui out of the bottle? *A.*—I did.

Q.—How much did she take? *A.*—Well, I really could not say. She —from the time I walked in the door—I walked up to her, a distance of about I suppose eight or maybe ten feet, she kept the bottle to her lips, from the time I walked from the door to her. She drank two or three pretty healthy swallows.

Q.—You had been called there to treat her professionally? *A.*—I was treating her at that time, and merely called to see her.

Whereupon an adjournment was taken until Tuesday, May 9, 1916, at 10:30 o'clock, a. m.

May 9, 1916, Morning

TESTIMONY OF DR. J. G. VANCE (*continued*)

The Court met pursuant to adjournment. Dr. J. G. Vance resumed the stand for the defendants.

CROSS-EXAMINATION BY MR. HOUGH

In the absence of Mr. Walker, cross-examination of Dr. Vance was undertaken by Mr. Hough.

Dr. Vance testified that he is a company physician for the Roden Coal Company at Marvel, Ala., and is paid by assessments on the employees. When he was in Warrior, Alabama, he was employed by two brick yards and three coal companies. He testified that he is a member of the American Medical Association. He received a letter from Dr. Perry, secretary of the state medical society, and also had a letter from Dr. Heizer before he saw him.

Dr. Vance came to Chicago first on the 24th of April. He went home when the Court adjourned and returned later. When he wrote to the secretary of the state medical society he told of three cases. He did this without reference to his records. Dr. Vance then gave in detail the names and addresses of the patients described in the direct testimony. Practically all of his testimony was taken from the records of his cases. It was understood that the expenses were to be paid and that he received a per diem but this is not dependent on the number of cases concerning which he testifies.

The witness was then questioned in detail concerning the incidents described in the direct testimony. He was asked in minute detail concerning the symptoms of the various

patients. He does not keep a record of all his cases but only of those which are interesting.

The witness was then cross-examined in detail concerning each of the patients; as to the time he saw them and the statements made by the patients concerning Wine of Cardui, also the subsequent history of each patient.

TESTIMONY OF DR. TORALD SOLLMANN

Dr. Sollmann was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. Sollmann testified that he is a physician. He graduated in 1896 at the Western Reserve University, Medical Department, Cleveland, Ohio. He is a professor of pharmacology, and materia medica at the Medical Department of Western Reserve University, and also professor of Materia Medica at the Cleveland School of Pharmacy. He has taught continuously in the Western Reserve since 1895, the first two years in physiology and afterward in pharmacology.

Q.—Are you a member of any scientific societies? *A.*—Yes. I am a member of the Cleveland Academy of Medicine, Ohio State Medical Society, American Medical Association, American Association of Physicians, the American Pharmaceutical Association, the American Physiological Society, American Biochemical Society, American Society of Pharmacology and Experimental Therapeutics, and the Society for Experimental Biology and Medicine.

Q.—Since you have been connected with these various societies, have you held any official positions with them, or any of them? *A.*—Yes. I have been president of the Pharmacological Society; I have been the chairman of the Section of Pharmacology and Therapeutics of the American Medical Association; I am a member of its Council on Pharmacy and Chemistry, and chairman of the Committee on Therapeutic Research of the Council. I am a member of the Pharmacopeial Revision Committee; of its executive committee—of its Committee on Scope; and chairman of its Committee on Therapeutics and Pharmacodynamics.

Q.—Doctor, have you published any original investigations in pharmacology? *A.*—Yes. From my laboratory there have been published approximately, I should say, about two hundred pieces of scientific work, and in the most—most of those, I either did myself or was in direction of them—directed them.

PHARMACOLOGY

Q.—Define the term "pharmacology," so that the jury may understand what is meant by it, Doctor — and ourselves, as well. *A.*—Pharmacology deals with and investigates the actions of drugs on living organisms; and that includes portions—involves a knowledge of chemistry, or pharmacy, of physiology and the principles of the treatment of disease—scientific principles of the treatment of disease.

Q.—You say it involves the action of drugs on the living organisms. Now, what do you mean by that, living organisms—so that we may understand? *A.*—That means anything that has life in it.

Q.—Yes? *A.*—Of course as it is used, it—that is by members of the medical profession, it relates mainly—eventually at least to the effects on man and on the higher animals.

Q.—Then, if I understand you, that includes both human beings and the higher animals? *A.*—Yes; incidentally also lower animals, but that is the main thing.

Q.—Also lower animals? *A.*—Yes.

INVESTIGATING A REMEDY

Q.—Doctor, you said that pharmacology is concerned in investigating the action of drugs. Now, assume that a certain preparation, which we will call Wine of Cardui, is claimed to be a female tonic, and a scientific remedy against various diseases of the female generative organs. Will you explain to the jury how the action or value of such a preparation might be determined? *A.*—The real investigation of the action or value of such a medicine would have to be determined by the ordinary methods of pharmacological science. That would include an investigation of the composition of such a remedy—an investigation of its effect upon animals, and a clinical investigation.

Q.—Now, what would be the clinical investigation—what would the clinical investigation involve? *A.*—You say the clinical investigation?

Q.—Yes. *A.*—The clinical investigation would be the determination of its effects on patients in hospitals—preferably at least.

Q.—Now, in order to obtain proper and definite results from such investigation, what is it necessary to do to avoid complications and errors, if anything? *A.*—Before taking up such an investigation on patients, if one wishes to make, as I said, a valuable investigation, one would have to start out, as I pointed out before, by investigating chemically the composition of such a drug, and its effect upon animals. It is only when this has been done that it would be desirable to test such a drug on patients at all. Then, having laid a foundation for its clinical tests, one might proceed to make such tests—having assured oneself that it could do no harm — he could then proceed to make such tests and then he would be—especially when they were based upon the preliminary investigation—they would have value.

Q.—Now, Doctor, why would a chemical investigation be necessary to be undertaken in that connection? *A.*—A chemical investigation, I should say, would have to be the first step, because the first thing that an investigator would want to know, when he is trying a drug, is what he is really dealing with, the sort of a thing that he has in his hand. He can go at his investigation with very much better understanding in a case of that kind than if he takes a thing that he has absolutely no idea what it may contain, or what it may not contain.

Very often, if he knows what is in a mixture, he will know the particular direction of his investigation, the direction that his investigation ought to take, instead of having to feel his ways in a thousand different directions that would be conceivable—he knows definitely what particular direction he will now have to investigate.

And beyond that still is the fact that the actions of a great number of drugs, of course, are at present known. If, therefore, the investigation, the investigator is told, or determines by himself, that a mixture or preparation contains this or that drug, it will very much simplify his examination, because he will not have to repeat the things which the long history of medical knowledge have already determined.

In other words, what might take many years, if he knew nothing about the preparation, he could determine in a relatively short time, if he knew primarily what was in it. Still more, of course, if he knew exactly what was in it.

ACTIVITY OF A HYPOTHETIC PREPARATION

Q.—Now, Doctor, assume it to be the fact that the following substances are absent chemically in the preparation known as Wine of Cardui, namely: alkaloids, resins, emetics, saponins and emodin cathartics. Would this enable you to form an opinion as to the activity of the preparation? *A.*—Yes; it would enable me to form a fairly comprehensive opinion as to the activity of such a preparation. The classes of substances that you name—you have named most of them in classes like alkaloids, etc. These classes of substances that you say are excluded comprise the majority of the known active drugs. It would, therefore, be, as far as all these known drugs belonging to these various classes are concerned — the preparation would, as far as these are concerned, be inactive. For instance, it would definitely exclude the presence of emetic drugs, the presence of cathartic drugs, and it would also exclude the presence of all, or nearly all drugs that act upon the uterus—or are known to act upon the uterus; such, for instance, as ergot and its principles, hydrastis and its principles; pituitary, adrenalin, and opium—the opium derivatives, metals, cathartics which act upon the uterus indirectly. I cannot, at the moment at least, think of any drug that acts upon the uterus, which would not be excluded by this sort of an examination — any drug that acts definitely upon the uterus, that would not be excluded by this sort of an examination.

Q.—Doctor, what is the average dose of iron in the United States Pharmacopeia? *A.*—One grain.

Q.—Now, assume it to be a fact that Wine of Cardui contains six ten-thousandths per cent. of iron; have you an opinion as to whether this quantity of iron is of any importance medicinally, when Wine of Cardui is given in tablespoonful doses, three or four times a day? *A.*—I have an opinion.

Q.—What is it, Doctor? *A.*—The dose — the proportion of iron which you state there, six ten-thousandths of a per cent., would mean that in order to obtain the tonic dose of iron—one grain—a quantity of two and one-half gallons of the preparation would have to be consumed; or, putting it another way, it would mean that in a tablespoonful of this preparation, there would be less than $\frac{1}{600}$ of one grain; less than $\frac{1}{600}$ of the tonic dose of iron. Evidently such a small proportion of iron would have absolutely no significance whatever.

Q.—Doctor, do you know the ordinary dose of volatile oils? *A.*—Three drops.

Q.—Assume that Wine of Cardui contains four-thousandths per cent. of volatile principles, other than alcohol and water; can you tell the jury how much Wine of Cardui would have to be used in order to obtain the average dose, namely, three drops of the volatile oils? *A.*—One and a quarter gallons.

Q.—What fraction of three drops of volatile oil would be in a tablespoonful of Wine of Cardui? *A.*—One three-hundredths of three drops.

Q.—What amount, Doctor? *A.*—One three-hundredths of three drops.

Q.—Of three drops? *A.*—Approximately.

Q.—Have you an opinion as to whether the volatile oil would be of any importance when Wine of Cardui is taken in tablespoonful doses, three or four times a day? *A.*—Such a dose as you named to be present there would have absolutely no significance whatever.

Q.—Do you know the dose of valerianic acid? *A.*—About 7½ grains.

Q.—That is the average dose. *A.*—About 7½ grains.

Q.—Assume it to be a fact that $\frac{1}{60}$ of a grain of valerianate is found in a tablespoonful of Wine of Cardui, so that two gallons of Wine of Cardui would be required to obtain the dose of 7½ grains, or so that a tablbespoonful would contain $\frac{1}{450}$ of 7½ grains; have you an opinion, on this hypothesis, as to whether the valerianate in Wine of Cardui is of any importance, when the solution is taken in tablespoonful doses, three or four times a day? *A.*—It is evidently of no importance.

Q.—Doctor, do you know the characteristic principle of viburnum prunifolium? *A.*—Viburnum prunifolium contains a bitter principle, sometimes called viburnin. It contains resin, some tannin and some valerianic acids.

Q.—Would the tannin when taken by the mouth exert any action on the system? *A.*—No, not on the system. Large doses of tannin act as astringent locally, when it is applied, draw the tissues together;

but since it is destroyed before it is absorbed, it never reaches the system, practically speaking, and therefore has no action upon the system proper.

Q.—What is a resin, Doctor? *A.*—A resin is a substance that is soluble in water — no — withdraw that — a substance that is soluble in alcohol, and insoluble in water.

Q.—Would it be soluble in 20 per cent. of alcohol? *A.*—No, it would not.

Q.—Assume that the extractive substances contained in Wine of Cardui are practically completely soluble in water, glycerin and syrup; does this enable you to form an opinion as to whether Wine of Cardui contains the resins of viburnum? *A.*—Yes, it would enable me to form an opinion. You stated in your question that the substances — the extractives are soluble in water, and similar solvents. Now, since the resins are insoluble in water and similar solvents, it is evident that the solution — the Wine of Cardui does not contain the resin of viburnum, or anything else.

Q.—Now, why, why is that, Doctor? *A.*—I just explained, that the resin being insoluble—

Q.—Insoluble in water? *A.*—In water—and you were stating that the residue dissolved in water and there evidently can be no resin there.

Q.—And the menstruum being 20 per cent. alcohol? *A.*—In 20 per cent. alcohol, the same thing would be practically true.

Q.—Now, Doctor, you said that Wine of Cardui would, on the assumptions we have made, contain no resins from viburnum. In your opinion, then, would Wine of Cardui represent viburnum prunifolium? *A.*—No; it would not represent it.

Q.—Assume that a certain synthetic preparation is made according to a certain formula, which, for the purpose of this question, we will call "A." Assume that other synthetic preparations are made by other formulas, variously modified by varying the proportions, by varying the methods of extraction, and by omitting certain constituents. Assume that these preparations were made and analyzed by several chemists working independently of each other, and compared by them with a simultaneous analysis of another preparation, namely, Wine of Cardui. Assume that these chemists found marked differences in all the preparations except that which we named "A," but that the preparation made according to the formula A agreed completely with Wine of Cardui in the following respects, except for such small differences as exist in different samples of Wine of Cardui itself. Assume that the respects in which agreement was found are the following: Color; taste; valerianic odor; specific gravity; reaction; solid residue and ash; nitrates and nitrogen; reducing sugar; reaction of the distillate to acids and alkalies; and the presence of a bitter principle giving the reaction of cnicin. Have you an opinion as to whether the product prepared by formula A is or is not identical with Wine of Cardui? *A.*—I have an opinion. On the basis of what you said, I am prepared to assert that the formula A—preparation made by formula A—is identical with Wine of Cardui.

Q.—Do you state this, Doctor, now as a fact? *A.*—That I state as a fact.

DIFFERENCE BETWEEN CARDUUS BENEDICTUS AND CARDUUS MARIANUS

Q.—Are you acquainted with the drugs called carduus benedictus and carduus marianus? *A.*—Yes.

Q.—Are they identical? *A.*—No; they are not identical.

Q.—What are the differences between them? *A.*—The two drugs sometimes called carduus benedictus and carduus marianus—there are other names for them also—are derived from different species of thistles. Those different species of thistle differ amongst themselves like the various species of grain differ amongst themselves; and one might, for the sake of comparison, say that the benedictus is something like the wheat and the marianus is something like the oats. That, however, is not the extent — full extent of the difference between these two drugs.

In the case of carduus benedictus, the entire herb is used, the thistle, just as it stands, is cut off the ground and is used in that way, generally while it is in flower. In the case of the marianus, that is not done, but the seeds are collected. So that the two drugs bear about the same relation to each other as oat meal would to wheat straw. That I should say about expresses the differences between the two drugs.

Q.—Now, Doctor, are the constituents of these two drugs identical? *A.*—No, they are not identical.

Q.—Why? *A.*—The characteristic principle of cnicus benedictus, the principle to which the action, or any action that it may possess—or is said to possess—is attributed, is a neutral bitter substance that is called cnicin. The benedictus contains practically no fatty oil and substances of that kind.

On the other hand, the carduus marianus, which is prepared from a seed, contains, like most seeds, a great deal of fatty oil. It is sometimes used as a source of fatty oil, like sunflower or corn oil. That is its most abundant constituent. It is not definitely known to contain any cnicin. If it does, it must be a mere trace, the merest possible trace.

One can tell the difference at once, if one makes a tincture—an extract of the two drugs. One only has to look at them and taste them to realize that the constituents are entirely different. You take an alcoholic extract, for instance, made from carduus benedictus, and it forms a straw colored, or a little darker brown solution of very bitter taste. It looks a little like Wine of Cardui.

You make an extract of the carduus marianus with alcohol, and you get an almost clear—almost colorless, but somewhat milky fluid. If you taste the two, you get a very marked bitter taste in the carduus benedictus due to that principle that I said is called cnicin. If you taste the carduus marianus extract, you get the flat oily taste, practically without any trace of bitterness; making the two of the same strength, say ten parts of the drug in each case, and 100 parts of alcohol, or something like that.

Q.—Then this cnicin which you have been talking about, and which comes from the carduus benedictus, is the bitter principle, the neutral bitter principle you have been speaking of? *A.*—That is the neutral bitter principle that I have mentioned.

Q.—Now, is that, or is it not, the active constituent, if it has any active constituent, of carduus benedictus? *A.*—It is considered the active constituent, in so far as there is any active constituent present. I think one may say it is the active constituent.

Q.—Doctor, can you give us any idea of how much cnicin there is in 30 grains of carduus benedictus? *A.*—I think there would be about one fifteenth of a grain.

Q.—Is it soluble in water? *A.*—Fairly so; not freely soluble, but fairly soluble.

Q.—Do you know whether the so-called solid extract of viburnum prunifolium and carduus benedictus are used in medicines? *A.*—Both of these are used in medicines. That is, they are official in various pharmacopeias; and that means, of course, that they are medicinal, used in medicines.

Q.—How are they prepared, Doctor? *A.*—They are prepared by evaporating either the fluidextract or the decoctions of those drugs. The exact process varies in different countries.

Q.—Well, now, in this evaporation, is heat applied? *A.*—That is the way in which they are evaporated.

Q.—Well, does or does not the heat that is so applied injure the drug? *A.*—Apparently not.

Q.—Can these extractives be prescribed in the form of —

Mr. Hough:—Pardon me. Did he say apparently not?

The Witness:—Yes.

Mr. Scofield:—He said apparently not.

Q.—Can these extracts be prescribed in the form of pills, capsules and tablets? *A.*—Those are the forms in which they are commonly prescribed.

Q.—Doctor, do you know whether viburnum prunifolium and carduus benedictus are ever used in the form of teas? *A.*—They are commonly used that way.

Q.—Assume that the residue of the evaporation of Wine of Cardui is soluble in glycerin and in syrup; would there be any —

Mr. Hough:—In what?

Mr. T. J. Scofield:—Glycerin and syrup.

Q.—Would there be any disadvantage in administering them in this form, instead of in 20 per cent. alcohol? *A.*—There would be no disadvantage.

A.—Assume that the residue from a tablespoonful of Wine of Cardui could be perfectly dissolved in two teaspoons of 20 per cent. alcohol, therefore, containing one-half the quantity of alcohol to the dose. Would there be any disadvantage in administering it in that way? *A.*—No—if it can be dissolved in that—as you said—there would be no disadyantage in administering it in that way. And if, as you said, it is soluble in water, it could be dissolved in a teaspoonful of 20 per cent. alcohol, making the dose of one-fourth.

Q.—Making the dose of Wine of Cardui one-fourth of a tablespoon? *A.*—Yes, and the amount of alcohol one-fourth.

Q.—Or one-fourth of alcohol? *A.*—Yes.

Q.—And still obtain the action of the drug, if the drug has an action? *A.*—Fully—just the same.

Q.—Just the same as in the tablespoonful dose? *A.*—Just the same.

Q.—Now, Doctor, you stated that a second method of investigating preparations such as Wine of Cardui is by animal experimentation.

Whereupon an adjournment was taken until 2:00 o'clock p. m. of the same day.

(To be continued)

Machinery of Metabolism.—Carl Voit, to whom more than any one else the world owes its fundamental knowledge of nutrition, was accustomed to say in his lectures, "Continual decompositions of matter are always going on in the living cells, and the energy liberated in these decompositions is the power upon which the motions of life depend. Phenomena of life are phenomena of motion." In truly poetical language, Rubner, the most eminent of Voit's pupils, has written, "Mute and still, by night and by day, labor goes on in the workshops of life. Here an animal grows, there a plant, and the wonder of it all is not the less in the smallest being than in the largest." The workshops of life require fuel to maintain them, and a necessary function of nutrition is to furnish fuel to the organism that the motions of life continue. Furthermore, the workshops of life are in a constant state of partial breaking down and materials must be furnished to repair the wornout parts. In the fuel factor and the repair factor lie the essence of the science of nutrition. These two factors operate to bring about death from starvation, either the body's own store of fuel becomes exhausted or a part of the machinery necessary for life wears out.—Graham Lusk, The Fundamental Basis of Nutrition.

Correspondence

A Report on the Efficiency and Nontoxicity of Arsenobenzol

In The Journal, March 18, 1916, p. 867, Ormsby and Mitchell of Chicago reported on the comparison between salvarsan and arsenobenzol. I was one of the first who through Dr. Schamberg's kindness was able to give this drug an extensive trial, and according to his statement have at the present time had perhaps the largest experience with it. Inasmuch as the Philadelphia product is about to be issued to the medical profession at large, it seems proper to supplement the Ormsby-Mitchell report in order to apprise the profession that the remedy may be used with perfect safety. The cases reported herein have been studied with two main considerations in view: first, the possible toxicity of the new drug, and second, its relative therapeutic value as compared with old salvarsan.

During the past six months, 243 cases of syphilis have been treated at the University Hospital with arsenobenzol. These patients have received in all 612 injections. The accompanying table classifies the types of cases treated.

TYPES OF CASES TREATED

Type	No.
Cases of primary and secondary syphilis	98
Cases of gummous syphilis	18
Cases of latent syphilis	85
Cases of hereditary syphilis	14
Cases of tabes dorsalis	14
Cases of acute cerebrospinal syphilis	11
Cases of general paresis	3

In addition, I have given about sixty intraspinal injections, using the arsenobenzol in a dosage of from 0.00033 + to 0.0005 gm. Patients thus treated were for the most part tabetics and persons with cerebrospinal syphilis.

With regard to the efficiency of the drug, it was noted that the immediate lesions disappeared as promptly as though they had been treated with the older salvarsan preparation. In 116 cases in which there were manifest cutaneous syphilids, there have been but four recurrences. One of these was a malignant pustular syphilid which returned after three injections in four months with a large gumma of the forearm. The other three were in the nature of neurorecidives. At the outset, in order to test out the product, and not being familiar with its properties, I gave the drug in somewhat smaller doses than is my custom with the older preparation. Thus whereas I customarily give 0.3 mg. as an initial dose at the outset, I gave but 0.2 mg., and the succeeding doses were correspondingly smaller. I am inclined to regard the four cases of recurrence, therefore, as due to underdosage, and it is noteworthy in this connection that the four cases occurred among the first ones which I treated. At the present writing I am using the arsenobenzol in repeated doses equivalent to the dosage employed in the use of old salvarsan. In the 612 injections given we can attest to the fact that only three cases showed any reaction. These were in the nature of allergic reactions, dyspnea, slight cyanosis and slight cardiac depression occurring during the third injection. In a few other cases in which many lesions were present, a rather sharp Herxheimer reaction occurred, as of course happens with the older preparation as well.

The intraspinal treatments have all been well borne, have been unattended by any untoward accident, and the therapeutic results have been identical with those produced by similar injections of old salvarsan. The method employed has been a modification of the Ogilvie method, namely, the introduction of the salvarsan solution directly into the spinal fluid.

From my experience with arsenobenzol it may be concluded that:

1. The immediate therapeutic results are fully as good as those following the use of old salvarsan.

2. Given with the proper precautions, the drug has shown itself fully as little toxic as the older preparation.

These two conclusions refer to intraspinal medication as well as to intravenous.

Udo J. Wile, M.D., Ann Arbor, Mich.

Bothriocephalus Latus Infection

To the Editor:—In The Journal, May 20, 1916, p. 1618, Dr. J. J. Singer reported a case of *Bothriocephalus latus* infection. In view of the comparatively few cases that have occurred in this country, or at any rate have been reported, it might be well to place on record one of which the specimen is in the Army Medical Museum. The specimen was received Feb. 4, 1864, from Dr. Hennell Stevens, U. S. Army, then Medical Storekeeper at Memphis, Tenn. Unfortunately he failed to furnish a history, and none has ever been received. The specimen is in several pieces, in all about 80 feet. Its character as *Bothriocephalus latus* was recognized at once.

D. S. Lamb, M.D., Washington, D. C.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SOME CHAUCERIAN MEDICINE

To the Editor:—1. Can you give me any historical essay references based on the middle English literature, especially Chaucer's lines on the doctor in "Canterbury Tales"?

2. What is the significance of (*a*) "gold potable" and (*b*) "image making" in those lines? C. C. Hinton, M.D., Atlanta, Ga.

Answer.—1. Norman Moore's Fitzpatrick Lectures for 1905-1906, entitled "Medicine in the British Isles," Oxford University Press, and Walsh's "Old Time Makers of Medicine," Fordham University Press, may be referred to. A good edition of Chaucer for this study is that of W. W. Skeat, in the notes to which practically all the information requested is found.

2. (*a*) "Gold potable": The reference is probably to "Les remonstrances de nature," by Jean de Meun:

C'est le fin et bon or potable
L'humide radical notable
C'est souverain medecine.

Throughout the middle ages and even much later it was supposed that aurum potabile was a sovereign remedy. It is referred to in "Humour Out of Breath," Act 1, Scene 1, in a footnote which calls it "the universal medicine of the alchemist prepared from gold, mercury, etc. The full receipt will be found in the fifth and last part of the 'Last Testament of Friar Basilius Valentin,' London, 1670." See also Thompson's "History of Chemistry," i, 164, and Burton's "Anatomy of Melancholy," Part 2, Section 4.

(*b*) "Image Making": The reference here is to the belief that by making images of persons from properly chosen materials and *at the right time*, effects, favorable or unfavorable, could be produced on the originals. The ascendant is the point of the zodiac which is rising from the horizon at any given moment, and serves as the means of fixing an astrologic epoch. The whole meaning of the passage, therefore, is that the doctor knew well how to choose a fortunate moment for making images to be used as charms to help his patients.

USE OF ANIMAL GELATIN

To the Editor:—1. What is the value of animal gelatin as a food?

2. In case it is desired to use gelatin, are commercial preparations such as "jello" sufficiently pure gelatin to be used? If not how is it best used. W. R. Smith, M.D., El Paso, Tex.

Answer.—1. Gelatin is an artificial derivative of collagen, the essential basis of white fibrous connective tissue or bone. It is a readily digestible protein substance, long classed as an "albuminoid," and known to be inadequate as the sole source of protein in the dietary. Gelatin contains approximately the same amount of nitrogen as the more typical proteins, and yields most of the amino acids characteristic of this group of nutrients; but it does not contain the tyrosin, cystin or tryptophan groups, all of which are now believed to

be indispensable nitrogenous nutrient units for the body. For this reason when gelatin alone is supplied as the nitrogenous portion of the ration, nutritive failure ensues.

Although gelatin alone cannot maintain nitrogenous equilibrium in nutrition, it can replace a considerable part of the protein usually present in the diet without detriment to the organism. It can restore the nitrogenous waste of the body to a certain extent, and yields energy as other foodstuffs do. Gelatin attracts attention as a food because of the readiness with which it is digested and tolerated, its freedom from some of the more objectionable products of putrefaction such as indol (owing to the lack of the antecedent tryptophan group), and because of the culinary advantages that it possesses. When used liberally in the diet, gelatin should be furnished along with other more complete proteins, such as those of egg or milk. It should be noted that gelatin, like other proteins, may yield sugar in the diabetic. Inasmuch as gelatin is almost invariably served in the form of jellies which consist very largely of water (usually to the extent of 95 per cent.) the actual nutrient possibilities of an ordinary serving must not be overestimated. An ordinary 2 ounce package of gelatin may suffice for several pints of jelly. This bulk is often satisfying to the palate when small intake of nutrient is desired.

2. We assume that our correspondent refers to the use of gelatin as food. Most of the widely advertised commercial gelatin products are sufficiently pure to serve acceptably in the dietary. Flavors form an occasional adjuvant. There need be no difficulty in selecting a proper food specimen from among the various brands at present sold as gelatin by American makers. Brands bearing special trade names are usually considerably higher in price per unit of nutrient. They sometimes include flavoring or coloring products in separate packages in the containers. According to published analyses, some of the preparations of jelly powders, such as the one mentioned by our correspondent, widely used as quick desserts, consist chiefly of sucrose with sufficient gelatin to make a jelly, and are variously flavored and colored to simulate the color and flavor of natural fruits. As a rule their compound nature is more or less clearly indicated on the label. Analyses of gelatin preparations and jelly powders will be found in the reports of the Connecticut Agricultural Experiment Station, Food and Drug Products, for 1909 and 1913.

Preparations of so-called "vegetable gelatin" usually consist of agar-agar or the gelatinizing carbohydrates of Irish moss (*Chondrus crispus*) and are essentially without nutritive value, though they form attractive dishes and may serve as a vehicle for other nutrients or for laxative purposes.

PRACTICE IN GOVERNMENT LANDS

To the Editor:—Please give me information concerning the practice of medicine on government property, national parks, Indian reservations, etc. R. B., Denver.

ANSWER.—The U. S. Department of the Interior has just issued a bulletin covering the above. It states that no business for profit can be conducted on government lands without special permission from the department. That medical service may be available for tourists and others, however, physicians are granted permits by the department to practice in several of the national parks. A nominal fee is exacted for these permits, which are granted only to those who are licensed under the laws of the state in which the park is located. This relates chiefly to the Yellowstone National Park in Wyoming.

At the Hot Springs reservation, Arkansas, physicians who desire to prescribe the waters must register in the office of the supervisor. This requires the passing of a medical examination prescribed by the secretary of the interior. No fee is exacted for registration, but the applicant must be a physician registered under the laws of the state of Arkansas.

In the various Indian reservations contract physicians and full time physicians are utilized. Contract physicians are employed after bids have been obtained from reputable licensed physicians practicing in the vicinity where any vacancy occurs. Employment follows only after approval has been granted by the Civil Service Commission. Full time physicians are employed only after certification from the Civil Service Commission, which from time to time conducts examinations of physicians for the Indian Service.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, July 10. Chairman, Dr. W. H. Sanders, Montgomery.

ALASKA: Juneau, July 5. Sec., Dr. H. C. De Vighne, Juneau.

CALIFORNIA: San Francisco, June 27. Sec., Dr. Charles B. Pinkham, R. 527 Forum Bldg., Sacramento.

COLORADO: Denver, July 4. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: Regular, New Haven, July 11-12. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven; Homeopathic, New Haven, July 11, Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven; Eclectic, New Haven, July 11, Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

DELAWARE: Dover and Wilmington, June 20-22. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

DISTRICT OF COLUMBIA: Washington, July 11-13. Sec., Dr. Edgar P. Copeland, The Rockingham.

FLORIDA: Jacksonville, June 13-14. Sec., Dr. E. W. Warren, Palatka.

ILLINOIS: Chicago, June 21-23. Sec., Dr. C. St. Clair Drake, Springfield.

INDIANA: Indianapolis, July 11-13. Sec., Dr. W. T. Gott, 84 State House, Indianapolis.

KANSAS: Topeka, June 13. Sec., Dr. H. A. Dykes, Lebanon.

KENTUCKY: Louisville, June 13-15. Sec., Dr. A. T. McCormack, Bowling Green.

MAINE: Augusta, July 6-7. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MASSACHUSETTS: Boston, July 11-13. Sec., Dr. Walter P. Bowers, 1 Beacon St., Boston.

MICHIGAN: Ann Arbor, June 19-21. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MISSISSIPPI: Jackson, June 20-21. Sec., Dr. J. D. Gilleylen, Jackson.

MISSOURI: St. Louis, June 13-15. Sec., Dr. J. A. B. Adcock, Jefferson City.

NEW HAMPSHIRE: Concord, June 26-27. Sec., Dr. W. T. Crosby, The Beacon, Manchester.

NEW JERSEY: Trenton, June 20-21. Sec., Dr. Alexander MacAlister, 429 E. State St., Trenton.

NORTH CAROLINA: Raleigh, June 27-30. Sec., Dr. H. A. Royster, Raleigh.

NORTH DAKOTA: Grand Forks, July 4. Sec., Dr. G. M. Williamson, Grand Forks.

OKLAHOMA: Oklahoma City, July 11. Sec., Dr. R. V. Smith, 502 Daniel Bldg., Tulsa.

OREGON: Portland, July 5-7. Sec., Dr. L. H. Hamilton, Medical Bldg., Portland.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 11-13. Sec., Mr. Nathan C. Schaeffer, Department of Public Instruction, Harrisburg.

RHODE ISLAND: Providence, July 6-7. Sec., Dr. Gardner T. Swarts, Room 313 State House, Providence.

SOUTH CAROLINA: Columbia, June 13. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

SOUTH DAKOTA: Deadwood, July 11. Sec., Dr. Park B. Jenkins, Waubay.

TENNESSEE: Knoxville, Memphis and Nashville. June 16-17. Sec., Dr. A. B. DeLoach, Scimitar Bldg., Memphis.

TEXAS: San Antonio, June 27-29. Sec., Dr. John S. McCelvey, Temple State Bank Bldg., Temple.

UTAH: Salt Lake City, July 3. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

VERMONT: Burlington, July 11-13. Sec., Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 20-23. Sec., Dr. J. N. Barney, Fredericksburg.

WASHINGTON: Tacoma, July 4. Sec., Dr. C. N. Suttner Walla Walla.

WEST VIRGINIA: Charleston, July 11. Dr. S. L. Jepson, Charleston.

WISCONSIN: Milwaukee, June 27-29. Sec., Dr. J. M. Dodd, 220 E. 2d St., Ashland.

WYOMING: Laramie, June 14-16. Sec., Dr. H. E. McCollum, Laramie.

MEDICAL COLLEGE MERGER IN PHILADELPHIA

Three medical colleges in Philadelphia have just been merged into one larger teaching institution which now provides for both undergraduate and graduate medical instruction. The union of the Medico-Chirurgical College of Philadelphia with the University of Pennsylvania as its Graduate School of Medicine has been under advisement for several months and later efforts were made to bring Jefferson Medical College also into the merger. These efforts have been successful.

On Friday, June 2, a plan for the merger of the Jefferson Medical College with the University of Pennsylvania, School of Medicine, was submitted by a joint committee to the board of trustees of the two institutions and was unanimously adopted by those boards. The joint committee consisted of Provost Edgar F. Smith, Effingham B. Morris and Randal Morgan, representing the University of Pennsylvania, and President William Potter, Simon Gratz and Alba B. Johnson, representing Jefferson Medical College. The plan as adopted is as follows:

The Plan

The boards of trustees of the University of Pennsylvania and of Jefferson Medical College of Philadelphia have agreed that the facilities now possessed by them for instruction in medicine and surgery shall hereafter be utilized and enlarged in combination rather than in a continued distinctiveness.

The identity of the two institutions, with maintenance of the inherited values of their respective names, and without change in the rights, powers and authorities vested in them by their respective charters and organic laws, is hereby recognized and preserved inviolate.

The following plan is suggested for the accomplishment of these purposes:

First.—The united medical schools hereby established shall be named and known hereafter as: "The Medical School of the University of Pennsylvania and the Jefferson Medical College of Philadelphia."

Second.—The respective faculties of the two schools shall hereafter become one faculty for purposes of instruction to students, divided into groups of individual members from both, e. g., surgical group, medical group, anatomy group, physiologic chemistry group, research group, etc. Each group shall meet together annually and decide on a roster determining and providing what each individual professor shall teach, where he will teach, and the hours of his instruction. Students may then elect which professor or professors in given subjects they will hear throughout the term.

Third.—The government of the united medical schools in its general administration and in its business affairs shall be vested by action of the boards of trustees of the two institutions in a joint committee of eight to be known as the "United Medical Committee," of which the provost of the University of Pennsylvania shall ex officio be chairman, and the president of the Jefferson Medical College of Philadelphia shall be vice chairman, and the other six members shall be three trustees from each board—not of the medical profession—appointed by each of the boards of the two institutions and serving during the pleasure of the respective boards.

Fourth.—The supervision of academic work, of hospital work, and of research work shall be vested in a dean and a vice dean who shall discharge the usual duties incident to these positions, with jurisdiction over both of the present schools and of such others as may be established. They shall be elected annually by the United Medical Committee on the nomination of the chairman and vice chairman of that committee; each of the united medical schools being represented in such election.

Fifth.—The dean and vice dean shall constitute a curriculum committee, which shall be charged with the duty of making a roster that will properly divide the hours of instruction among the different groups and obviate any difficulties that may arise in the selection of hours.

Sixth.—Examination in course and for final degrees shall be conducted by a commission selected and agreed on from year to year by the dean and vice dean in consultation with the several groups.

Seventh.—Elections of members of the faculty of the school, or appointment of any person on the teaching staff, shall be made by the United Medical Committee, subject to confirmation of such elections or appointments by the respective boards of trustees of the two institutions, and subject to and in accordance with the provisions of their respective statutes and by-laws. In like manner changes which it may be desirable to make from time to time in the faculty or in the teaching staff, and retirement of all professors, assistant professors, or instructors, shall be made by appropriate action of the respective boards of trustees, in accordance with their respective statutes and by-laws, only on and after recommendation by the United Medical Committee.

Eighth.—The diplomas of graduates of "The Medical School of the University of Pennsylvania and the Jefferson Medical College of Philadelphia" hereby established shall be signed by the provost of the University of Pennsylvania, the president of the board of trustees of the Jefferson Medical College of Philadelphia, and by the dean and vice dean, and shall bear the corporate seals of both institutions.

Ninth.—The respective alumni associations of the two institutions may continue their independent existence; and any graduate of the united medical schools may join, at his pleasure, either or both of said associations.

Tenth.—There shall be a treasurer chosen by the United Medical Committee, and subject to the directions of that committee as to the receipt and expenditures of available resources.

Eleventh.—The budget of estimated income and expenditures of the united medical schools shall be presented, each year, by the United Medical Committee to the respective boards of trustees, for their consideration and approval; and said committee shall have no authority to expend any moneys, other than those provided by the said budget, without the approval of the respective boards of trustees.

Twelfth.—No moneys or real or personal property heretofore given, devised or bequeathed, or that may hereafter be given, devised or bequeathed to either of said institutions separately, for a specific purpose, shall be in any manner diverted from such purpose.

Subject to this provision, all tuition fees, income from invested funds, gifts by individuals, legislative appropriations, or receipts from any other source, shall be applied to the support of the united medical schools.

Thirteenth.—All moneys, or property of any description whatever, whether real or personal, now constituting the endowment fund of either of the hospitals connected with the two institutions, and all gifts, devises, bequests, or appropriations by the Commonwealth of Pennsylvania that may hereafter be made to either of them specifically, shall continue to be the separate property of such hospital; but wherever any such gift, devise, bequest or appropriation shall hereafter be made to said hospitals jointly, or as constituent parts of the united medical schools hereby established, a division shall be made between the two hospitals in accordance with their needs, by action of the United Medical Committee, and such division shall be set forth in the annual budget.

Fourteenth.—Except so far as they shall be used for clinical purposes and the instruction of students of the united medical schools, the respective hospitals of the two institutions shall continue to be under the charge and control of their respective boards. The use of these hospitals for clinical and teaching purposes shall be under the direction of the United Medical Committee, pursuant to such arrangements for such use as shall have been made by that committee with the respective boards of trustees.

Fifteenth.—The students of the united medical schools shall have the use of the libraries and museums of both schools. They shall also have the use of the university's dormitories, and all other privileges and relationships now enjoyed by the students of all other schools and departments of the university, or which may be hereafter enjoyed by them, and on the same terms and conditions.

Book Notices

THE INSTITUTIONAL CARE OF THE INSANE IN THE UNITED STATES AND CANADA. By Henry M. Hurd, William F. Drewry, Richard Dewey, Charles Pilgrim, G. Alder Blumer and T. J. W. Burgess. Edited by Henry M. Hurd, M.D., LL.D., Emeritus Professor of Psychiatry, the Johns Hopkins University. Cloth. Volume I. Price, $2.50. Pp. 497, with illustrations. Baltimore: The Johns Hopkins Press, 1916.

This series, of which only Volume I has been issued, will concern modifications of methods for the care of the insane in America. It is evident that during the past half century a gradual evolution has occurred in the care of the insane which points toward the ultimate cure of such persons. The authors state in the preface:

> The movement towards the prompt treatment of curable cases without the formality of legal commitment, and under the same conditions as in admission to a hospital for general bodily disease, gives every hope that at an early day cases of recent attack may be received everywhere promptly, and that greatly increased numbers can be cured. Cases of a chronic nature are also now much more satisfactorily dealt with in institutions on the cottage plan, with outlying colonies for the employment of patients, and have a correspondingly better opportunity to attain self-support. These movements promise to make material changes in future methods of caring for the insane.

Volume I takes up the history of the Association of Superintendents of American Institutions for the Insane which existed from 1844 to 1893, and the American Medico-Psychological Association which followed. The book considers the care of the insane from the early colonial days down to a more modern period. A special chapter is given to the work of Dorothea Lynde Dix; then follow the growth of the country system and colonies, and a discussion of the growth of hospitals and development of hospital architecture. Chapter VI is devoted to reforms in caring for the insane,

medical and nonmedical treatment, employment, individual treatment, and the growth of psychopathic hospitals and research work in hospitals. The next chapter considers the establishment of training schools for nurses and training schools for attendants, following which is a short chapter devoted to the private care of the insane. Then follows a chapter on the law of insanity, the commitment and discharge of the insane, admission of voluntary patients and the care of the criminal insane. Immigration and the care of the alien-born in relation to the state cost of insanity are the exceedingly important topics next considered. Another chapter is devoted to insanity among the negroes, North American Indians and those in South Dakota, the Chinese and Japanese in the United States. The last two chapters of this volume are devoted to a census of the insane, giving statistics of the population in various states; the final one is devoted to insanity in Canada.

The work is thorough, interesting and practical; a credit to all who have been concerned in its compilation.

HYSTERIA AND ACCIDENT COMPENSATION. Nature of Hysteria and the Lesson of the Post-Litigation Results. By Francis X. Dercum, M.D., Ph.D., Professor of Nervous and Mental Diseases, Jefferson Medical College, Philadelphia. Cloth. Price, $2. Pp. 120. Philadelphia: The George T. Bisel Company, 1916.

This book presents the subject of "accident hysteria," in as condensed and readable a form as possible, for legislators, lawyers and sociologists. "Railway spine" came with the advent of the railroad, and has frequently appeared in personal injury litigation. According to the author, after an accident there often develop cases of "traumatic hysteria" or, as the author tersely puts it, "litigation hysteria." This is a condition which preexists in the individual. It is not the same as hysteria caused by a bona fide injury or fright. It is produced by the psychology of compensation. The author's experience has shown that these imaginary ills take flight with the settlement of the case. The same situation is to be found under the workmen's compensation acts. Usually these laws have made no adequate provision for separating the spurious from the real. A detailed examination of the patient made by an impartial scientific specialist will usually distinguish between the two. In Germany, by reason of intensive industrial legislation, this so-called "pension hysteria" has developed to a greater extent, perhaps, than in many other countries. This seems to be by reason of the German method of paying compensation, which continues during the period of disability, while other countries have a cash settlement basis. Thus, in Denmark the percentage recovering from traumatic neuroses is 93.6. In Germany it is only 9.3 per cent. The author concludes that the solution of the problem is to deny compensation in cases of "litigation hysteria." This has been advocated in both Germany and France; in Sweden this method is actually pursued by the insurance societies. To bring legislator, lawyer and judge to a proper understanding of these cases in order that justice under the law may more nearly obtain is the work of the scientific expert. In the opinion of the author, this is a matter of education, and an immediate and concerted effort should be made by the medical profession to bring about its consummation.

A LABORATORY COURSE IN SERUM STUDY. Bacteriology 208, Being a Series of Experiments and Diagnostic Tests in Immunology Carried Out in an Optional Course Given to Medical and Graduate Students in the Department of Bacteriology, College of Physicians and Surgeons, Columbia University, New York, by the Writers. By Hans Zinsser, M.D., J. G. Hopkins, M.D., and Reuben Ottenberg, M.D. Cloth. Price, $1.25. Pp. 184. New York: The Macmillan Company, 1916.

The primary purpose of this book is indicated by the title, and seems to be to guide the student carefully in carrying out fundamental experiments, and to draw the conclusions indicated by the results. The book will be of much service to those planning similar courses, and to students and physicians who wish to become familiar with the technic of immunology and serology, not merely for the purpose of conducting diagnostic tests, but also in order to grasp the fundamental principles.

Medicolegal

Responsibility for Loss of Drainage Tube in Body of Child

(Cyr vs. Landry (Maine), 95 Atl. R. 883)

The Supreme Judicial Court of Maine sustains a motion by the defendant for a new trial after a verdict against him for alleged malpractice in connection with the loss of a drainage tube in the body of a child. The court says that the only issue under the plaintiff's declaration was whether the tube was lost through the negligence of the defendant, but the case was tried also on the issue of whether, if the tube had entered the pleural cavity through accident, or the fault of another than the defendant, did the defendant then exercise such care to discover whether it was in the cavity, as ordinary skill and knowledge required? In other words, was he negligent, in view of the professional skill required, in not making a reasonable effort to discover whether the tube was in the cavity? Another surgeon had operated on the child, October 16, for the removal of fluid from the pleural cavity, and last saw the patient on the 31st. The plaintiff took charge of the case, November 2. If the drainage tube which the other surgeon left fastened with a safety pin through the gauze and the tube was in the body of the child when the defendant came, he was not guilty of malpractice. If he took the tube out and attempted to secure it by the mere use of sticking plasters and on that account it dropped into the cavity, he was guilty. The testimony in the case was conflicting, but the mere fact of conflicting testimony is not a sufficient basis, in all cases, for the foundation of a verdict. The evidence was ample to persuade a reasonable mind that the tube was lost through the improper manipulation of the dressing by the child's mother, and that the latter knew, or had every reason to know, that through her own fault it had dropped into the cavity. And in view of the fact that it was impossible for the tube to enter the cavity unless the safety pin was removed, and that the defendant was completely misled by the denial of the child's mother that she had interfered with the dressing, and that she was charged with every reason to believe that the tube was in the body, yet withheld the information, it is the opinion of the court that when the defendant directed her time and again to take the child to the hospital for an operation, if she believed the tube was in the body, he exercised such care, under the circumstances of the case, as ordinary medical skill and knowledge required. The verdict rendered against the defendant should be set aside on both issues.

Adulteration and Misbranding Due to Alcohol—Scope of Pure Food Law

(Hoefler vs. Mickle (Ore.), 153 Pac. R. 417)

The Supreme Court of Oregon affirms a judgment in favor of the defendant, whom it was sought, as food and dairy commissioner of the state, to prevent from seizing and confiscating some candy manufactured by the plaintiff and styled "Centennial Chocolates," which contained not to exceed 1.05 per cent. by volume of alcohol, without its being mentioned in the label. The court says that this litigation arose under the pure food law of Feb. 26, 1915. The questions to be determined were whether the plaintiff had in possession with intent to sell or distribute an adulterated article of food or one which was misbranded. The object of the act is to promote purity of food products and to protect the public against deception in such articles. To this end the law has denounced adulterations and deceptive labels. In such cases as the one in hand, for instance, a parent buying candy for his children has a right to know whether it is indeed pure confectionery or a mixture of sugar and whisky or other intoxicating liquor. Chocolate, a product of cacao seeds roasted and ground and often mixed with sugar, is a harmless article of food and, if true to the label admitted in this suit, would not be harmful to any one. On the other hand, if it contains an ingredient "injurious or detrimental to health of consumers," as mentioned in Subdivision 16 of

Section 21 of the act, or, as stated in Subdivision 5 of Section 35 on misbranding, if it contains "any deleterious substance"; it is misbranded within the meaning of the act. Alcohol is classified by all toxicologists as a poison. Considered in the light of legislation from the foundation of the state to the present, it is a substance deleterious to health. It has always been under the ban of the law as an enemy to the physical welfare of the people. Without reference to whether or not a food commissioner has established a standard of purity for the article of food called "candy," the fact that the confection in question contained 1.05 per cent. of alcohol was sufficient to bring it within the sixteenth subdivision of Section 21 defining an adulterated article of food, for the simple reason that free alcohol is injurious and harmful to the health of any one who partakes of it. It was strongly urged that Section 35 of the act is indefinite and uncertain, and particularly that it is impossible to determine whether the third subdivision relates to drugs or to food. By its own terms the section is made to apply to all articles of food. Referring to the earlier Section 20, it is found that the term includes all articles used for food or drink, or intended to be eaten or drunk by man, whether simple, mixed or compound. This definition is wide enough to include within its terms drugs which are intended to be taken inwardly by individuals. In the statutory sense, therefore, such drugs are food, and for the purposes of Section 35, construed with Section 20, it matters not whether Subdivision 3, stating certain cases which shall be deemed misbranding, be applied to the bread of the baker, the candy of the confectioner, or the drugs of the physician. The stipulation of facts measured by this enactment disclosed that the article in question was not only adulterated, but also misbranded.

Violation of Medical Practice Act Sufficiently Alleged

(Young vs. State (Tex.), 181 S. W. R. 472)

The Court of Criminal Appeals of Texas affirms a judgment of conviction of defendant Young of unlawfully practicing medicine. The court says that the defendant moved to quash the information and complaint because they did not allege that he had not recorded a certificate or diploma in the county of his residence. They alleged that he practiced medicine "without having first obtained from an authorized board of medical examiners a certificate of professional qualifications, and without having a diploma from some accredited medical college." If he had obtained a certificate or diploma and failed to record it in the county of his residence, he would be guilty, and if he had such certificate or diploma, it would be necessary to allege that he had not recorded it in the county of his residence before a conviction would be authorized. But when the information alleged that he had never obtained a certificate or diploma, this language necessarily implied and charged that he had not recorded authority in the county of his residence. It is always better to follow the language of the statute, but this is not absolutely essential, if language of equivalent import is used. Nor did the court err in striking out a plea of former jeopardy or acquittal. This information alleged that on or about March 12, 1915, and thence continuously up to the date of filing the complaint in this cause, which was April 27, the defendant did unlawfully engage in the practice of medicine, and did prescribe for and visit Mrs. Thad Pines, etc. This covered a specific time from March 12 to April 27. The other information also covered a specific time, from May 10, 1915, to May 12, 1915, and alleged that the defendant engaged in the practice of medicine, and did treat one W. W. Prior. They were separate and distinct offenses alleged, and occurred at separate and distinct times. The state had to prove in one instance that the defendant treated and offered to treat Mrs. Pines, and in the other Mr. Prior. As the statute specifically defines the words "practicing medicine," the court did not err in not admitting testimony as to the general meaning of those words. Furthermore, there was no error in admitting the testimony of one Braden, which showed that the defendant treated his wife and that he received his board and lodging as compensation for the medicine furnished and services rendered.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, DETROIT, JUNE 12-16.

Alpha Omega Alpha Society, Detroit, June 12.
American Academy of Medicine, Detroit, June 9-12.
American Association of Anesthetists, Detroit, June 12.
American Proctologic Society, Detroit, June 12.
American Therapeutic Society, Detroit, June 9-10.
Montana State Medical Association, Miles City, July 12-13.
National Association for Study of Epilepsy, Detroit, June 16.
New Jersey Medical Society, Spring Lake, June 20-22.
Washington State Medical Association, Seattle, July 12-14.
Western Roentgen Society, St. Louis, June 9-10.

ASSOCIATION OF AMERICAN PHYSICIANS

Thirty-First Annual Meeting, held at Washington, D. C., May 9-11, 1916

DR. HENRY SEWALL, Denver, in the Chair

SYMPOSIUM ON ACIDOSIS

Biochemistry of Acidosis

DR. LAWRENCE J. HENDERSON, Boston: The equilibrium between acids and bases is essential to life. Fluctuations in equilibrium occur, but normally the limits of fluctuation are narrow. Wider fluctuations in these equilibriums occur pathologically, but the acid-basic fluctuations do not, as a rule, involve changes in the H-ion concentration. Acidosis is defined as any disturbance of the acid basic equilibrium whereby the power to resist acids in the body is lost. It is now possible to say that the main change in acidosis is the loss of blood bicarbonates. The bicarbonates are to be regarded as the *third* constituent of the blood: reckoning water first, salt second, and bicarbonate third. This third constituent is specially subject to fluctuations, owing to the constant physiochemical interchanges between blood and respired air. Since H-ion concentration is proportional to the reactions between bicarbonates and free carbon dioxid, the ratio of free carbon dioxid and bicarbonates is kept fairly constant by the mechanism of ventilation. Hence, H-ion concentration is now regarded as the hormone of respiration. The maintenance of the acid-base equilibrium becomes more complicated in pathologic states, and always is related to and dependent on the general metabolism of the body. Beneath all metabolism is a constant diminution of blood bicarbonates; unless repaired, this leads to acidosis. The carbon dioxid tension of alveolar air and of the blood, together with the measure of alkali ingestion, are the measures of acidosis. Neither ammonia concentration nor urinary findings are safe guides. Attempts to explain general pathologic states on basis of H-ion concentration or acidosis are not justified. Any attempt to treat a disease like nephritis by the indiscriminate administration of large amounts of alkali is malpractice. Small amounts of alkali, given over a long time, are allowable, and when they are so given, acidosis is impossible.

Acidosis in Infants and Children

DR. JOHN HOWLAND, Baltimore: Acidosis in children is a dangerous but often an acute, self-limited disease. It is not merely an acetonuria, but depends on a loss of the acid-base equilibrium of the blood. Hyperpnea is the clinical sign: laboratory tests are the indexes, these being carbon dioxid tension of alveolar air, H-ion concentration of blood, and alkali reserve of blood. The natural low level of carbon dioxid tension and low H-ion concentration in the young explain susceptibility to acidosis. Onset of acidosis is marked by hyperpnea; coma soon ensues: the alkali reserve may be restored, but unless done quickly, death follows. The presence of acid phosphates in the blood in excess (from five to fifteen times the normal), continued long enough, would rob the body of bases. Restoration of bases does not always stop the accumulation of acid phosphates. Acidosis is seen in many diseases of infancy and childhood, and should always be kept in mind; its early, rational treatment may be the means of saving life.

Acidosis in Diabetes

DR. R. T. WOODYATT, Chicago: The explanation of the occurrence of acidosis in diabetics depends on definition of difference between the diabetic and the normal individual. The proportionality between glucose utilization and wastage depends on rate of intake. It may be said that with a rate of glucose intake high enough, the normal individual becomes diabetic; with the intake low enough, the diabetic acts like the normal individual. The difference is in the wastage. The occurrence of acidosis in diabetics depends on this. It has been found that one molecule of carbohydrate must be burned to care for three molecules of higher fatty acids. If this ratio cannot be maintained, the body "smokes" with unburnt fats, and acetone, betahydroxybutyric acid, and diacetic acid appear in the urine. In diabetics the absolute rate of carbohydrate utilization is low, and it is necessary to bend down the rates of protein and fat metabolism to meet that of the carbohydrates. Thus the application of rest, warmth and fasting in the treatment of diabetes is rational. Acidosis in diabetes may always be accounted for in the way described, except in certain cases, as its occurrence in the course of septic processes; such cases may be called accidental rather than diabetic acidosis.

Acidosis in Acute and Chronic Diseases

DR. CHANNING FROTHINGHAM, JR., Boston: The finding of acidosis in other diseased states than diabetes led to a study of carbon dioxid tension of alveolar air, H-ion concentration of blood, acetone and ammonia-nitrogen output in urine, and soda utilization in a large and diversified series of cases. The results of the study may be summarized thus: In adults, acidosis of the diabetic type does not exist in a large number of miscellaneous diseases, but a certain form of acidosis does exist (as shown by Howland) which may be recognized by available tests.

Investigations in Diagnosis and Treatment of Acidosis

DR. LEONARD G. ROWNTREE, Minneapolis: The H-ion concentration of the blood must be kept at a normal level to maintain life. Studies with the electrometric method have established the fact that the dialysis-indicator method may be depended on. The method is simple and absolute. Studies of the "buffer" values of the blood (ability to care for acid-basic fluctuations without disturbance of the H-ion concentration) indicate the normal to be 0.36. In acidosis, the "buffer" value for both acids and bases is reduced or lost. The mechanism of changes in "buffer" value is not known. It may be said that true acidosis occurs when there is a change in H-ion concentration of the blood; compensated acidosis occurs when there is a change in the buffer value without change in H-ion concentration. In disease states, acidosis and disturbances of H-ion concentration may be corrected without benefit to the patient. The administration of alkalies beyond the point of correction of acidosis is harmful: alkali therapy, therefore, should be controlled by available tests.

Discussion on Symposium on Acidosis

DR. YANDELL HENDERSON, New Haven, Conn.: The acidosis we used to talk about is certainly not the acidosis of today. The acidosis of diabetes is not the acidosis of asphyxia, or of nephritis. We might better in one case speak of ketonuria, and in another, of low carbon dioxid states, and so on. In 1911 I was a member of Haldane's Pike's Peak expedition, and all of the party had acidosis when a sufficient altitude was reached, if the carbon dioxid tension is taken as the index. I am rather skeptical of the hurtful effects of acidosis. I have not seen figures indicating a more severe acidosis than I persistently had on Pike's Peak when I was feeling particularly well. The description given by Dr. Henderson was on the basis of sea level data. But on going above sea level one's acidosis increases with the altitude; in a caisson, acidosis diminishes. Miss Fitzgerald, of the Haldane expedition, has shown this as a result of hundreds of observations made at various altitudes. The net result of her work is that one can determine the altitude of any community by the measure of the carbon dioxid tension of the alveolar air of the inhabitants, or, in other words, by their acidosis.

It is safer to keep in mind the facts: From the urinary standpoint, acetonuria may be found; from the respiratory standpoint, variations in carbon dioxid tension or volume of ventilation may be measured; from the point of view of the blood, disturbances of H-ion concentration may be noted; and other measures of the body's alkali-acid balance may be made. But if all of these measures are to be accepted as measures of acidosis, we shall encounter cases of acidosis in which the acidosis is not a condition of acid blood at all, because the H-ion concentration of the blood may still be normal. It is necessary, therefore, to formulate and keep clearly in mind just what in the future shall be known as acidosis.

DR. E. J. VAN SLYKE, New York: Much of the discussion has dealt with the relations between the kidney, lung and blood functions in acidosis. The phenomena arising in these various systems are corollaries one to another. I agree with Henderson that acidosis is a loss of the normal relationship between acids and the bicarbonates of the blood. I also agree with Rowntree's classification of compensated acidosis and true acidosis on the basis of undisturbed and disturbed H-ion concentration, respectively. With regard to reduction of carbon dioxid tension of alveolar air, this is only an indirect measure of the H-ion concentration of the blood, and it cannot be regarded as synonymous with acidosis. It is an exact measure of the H-ion state of the blood only when the lungs are functioning normally and under fixed conditions of temperature and atmosphere. The same may be said of the urinary findings; certain urinary changes are recognizable and acceptable as indirect evidences of acidosis; but they are not synonymous with acidosis, and they depend on renal integrity and other factors for constancy.

DR. THEODORE C. JANEWAY, Baltimore: Thus far we have talked of acidosis in terms of ketonuria; but it has now been shown that the modern conception of acidosis, acidosis in its strict sense, is the true cause of diabetic coma. Most of the criticisms have been made on the fact that acidosis is merely a biochemical event and not a just measure of disease; but it is the acidosis that causes the hyperpnea, etc., and it is possible to conceive of acidosis as the cause of functional disturbances without sacrificing the truth of Henderson's remark about the nonspecificity of the blood changes in this condition. The newer types of acidosis have to be recognized: it is only necessary to remember that there are fundamental metabolic differences in the origins of the various types.

DR. E. P. JOSLIN, Boston: Two thirds of all diabetics (all diabetic children) die in coma; in fact, all diabetics dying in the first year of the disease die of coma. If it can be shown that the number of diabetic fatalities in the first year of the disease has been lessened, this must be because the treatment of acidosis has improved with the improved treatment of diabetes. Such statistics are now available and show that the mortality of diabetes in the first year has been greatly reduced.

DR. C. F. HOOVER, Cleveland: One point bearing on the relation between acidosis and carbon dioxid tension of alveolar air needs to be emphasized. There seems to be an impression that there is a definite relationship between carbon dioxid tension of alveolar air and the amplitude of ventilation. There is no such definite constant relationship. I have seen cases of hyperpnea without acidosis, and cases of acidosis with hypopnea.

DR. H. A. HARE, Philadelphia: Thirty years ago I learned in Ludwig's laboratory that the blood is the most carefully protected tissue of the body, and that one should be careful to do no harm by introducing strange substances into it. This warning should be heeded in view of what has been said here about the harmful effect of too active alkali therapy in acidosis.

DR. LAWRENCE J. HENDERSON, New Haven, Conn.: It is clear that in a great variety of diseases there is a loss of ability to protect the blood against acids; and this condition ought to be called acidosis. Because alkalies have been abused is no reason for refusing bicarbonates in small quantities and over long periods; for bicarbonate is the *third* constituent of the blood. While acidosis cannot be

held to be the cause of disease, it can be held to be the cause of syndromes in disease; for one, he believes that acidosis is the cause of diabetic coma. It is possible to overcome the acidosis of diabetic coma without curing the condition, as had been pointed out. This may be due to the fact that the cells of the body are not so readily and quickly influenced by substances introduced into the blood in treatment; and evidence of acidosis may disappear from the blood while the condition persists in the tissues.

(To be continued)

THE AMERICAN NEUROLOGICAL ASSOCIATION

Forty-Second Annual Meeting, held at Washington, D. C., May 8-10, 1916

The President, DR. LEWELLYS F. BARKER, Baltimore, in the Chair

Presidential Address: War and the Nervous System

DR. L. F. BARKER, Baltimore: So far as wounds of the brain and spinal cord are concerned, the accepted views regarding topical diagnosis are being corroborated. It has been established that certain organic lesions of the central nervous system may be caused by modern high explosives without external wound. Surgeons are unanimous in urging the thorough investigation of every head wound, no matter how trivial it may at first seem to be. As regards the peripheral nerve injuries, it has been shown that loss of power due to section of tendons or muscles may sometimes be confused with paralysis due to lesions of the nerves themselves. Contrary to what many expected, nervous states not due to organic lesions, though fairly numerous, have in reality made up but a very small proportion of the total number incapacitated by the war. All the well known types of the functional nervous disturbances have been encountered. As regards the psychoses, it is surprising that such a small number of cases of insanity have been reported. It is asserted that the majority of soldiers in whom psychoses have been observed either had symptoms of the disease before the war or had given definite evidence of predisposition to mental disorder. The evidence seems to favor the view that the human nervous system is today better able to stand strain than ever before in its history.

The Differentiation and Organization of Sensations

DR. STEWART PATON, Princeton, N. J.: As the result of observations on the embryos of some of the higher vertebrates I want to emphasize two points: first, the great necessity of looking at the neurologic phenomena from a broad biologic standpoint; and second, the great value that still comes to us from a study of comparative neurology. In the chick embryo of from fifty-five to fifty-seven hours of incubation, the motor half of the reflex arc is developed far in advance of the sensory half. This tract is developed from the lower caudate quarter of the cord up to the level of the third nerve. At 120 hours the development of the third nerve to its terminal distribution can be followed. Evidently this is an ancestral inheritance. The sensory half of the arc is very gradually superimposed on the motor sector. When the embryo first responds to stimuli from the outside world the first organ to come in and modify responses is the thyroid; and a little later the suprarenals. At this period from 120 to 125 hours, there is an enormous differentiation in the sympathetic nervous system. Only very much later do the sex organs apparently come into the neural circuit.

Neuraxial Differentiation of the Fibers from the Horizontal and the Fibers from the Vertical Semicircular Canal

DR. CHARLES K. MILLS and DR. ISAAC H. JONES, Philadelphia: Cajal has shown histologically that fibers from the vestibular portion of the eighth nerve enter Deiters' nucleus and continue from the inferior cerebellar peduncle into the cerebellum itself. We believe that (1) this path includes the fibers from the horizontal semicircular canals exclusively, and that (2) the fibers from the vertical canals have an entirely different course. The former are confined to the oblongata, while the latter ascend into the pons. In twenty-eight cases in which the labyrinths themselves and the eighth nerves were normal and the horizontal canals gave normal reactions, the vertical canals failed in some or all of the well known responses. That the labyrinths themselves were normal was made probable by the presence of perfect hearing, and corroborative evidence of neuraxial lesions was additional confirmation. In five cases, stimulation of the vertical canals produced no nystagmus, no vertigo, no past-pointing and no falling, and yet violent projectile vomiting occurred. This showed that the vertical canals themselves were functionating; in fact, there was even a hyperactive response of the tenth nucleus to the stimulation of the canals. In one case in which the lesion was clearly thrombosis of the right posterior inferior cerebellar artery, the right horizontal canal failed to respond normally, whereas reactions from the right vertical canals were normal. Therefore, a central differentiation of the fibers from the different canals must exist. In a case of Mills the fibers from the vertical canals failed to respond, while those from the horizontal canals reacted. In this case a necropsy was obtained and a microscopic examination with serial sections was made. It shows a glioma of the upper part of the pons, the lower half of the pons and the oblongata being normal. This proves that the vertical canal fibers extend as far at least as the middle of the pons. In a case of Dr. T. H. Weisenburg, symptoms of involvement of the right sensory portion of the fifth nucleus and the right sixth nucleus and sensory symptoms in the left extremities indicated a lesion in the right side of the pons posteriorly in the region of the middle cerebellar peduncle. In this case, stimulation of the right vertical canals failed in all responses, whereas the right horizontal canal and all the canals of the left ear gave normal reactions. In our experience, interruption of the impulses from the vertical canals is produced by tumors of the cerebellopontile angle, internal hydrocephalus causing pressure on the floor of the fourth ventricle, and intracerebellar tumors causing pressure on the pons.

Sensory Disturbances of Cerebral Origin

DR. ALFRED GORDON, Philadelphia: I find that the generally adopted views concerning sensory disturbances of cerebral origin do not always present the real condition. For example, in one of my cases there was a large hemorrhage strictly limited to the parietal lobe; nevertheless, there was a hemiplegic condition on the opposite side. Also in a case with involvement of the very posterior portion of the internal capsule, which is supposed to be purely sensory in function, there were no sensory disturbances at all during life. My conclusions are that, in spite of the generally accepted views concerning sensations of cerebral origin, certain conservative reservations should be made whenever diagnostic deductions are to be made.

DISCUSSION

DR. DAVID I. WOLFSTEIN, Cincinnati: A colored man came into our receiving ward but was not admitted because nothing could be recognized. He came a week later and we found that he had localized convulsion of the face and arm and there was very complete arteriosclerosis. He also had a loss of the position sense and impairment of the localizing sense. The Roentgen rays showed that he had been stabbed in the head with a penknife and that a piece of the blade was extending into the precentral convolution. The blade was extracted, and the man recovered promptly from the convulsions; but the arteriosclerosis and the disturbance of the sensations remained as before.

DR. H. H. HOPPE, Cincinnati: I recall a case of tumor in the arm center in which the first manifestation was pain in the tip of the finger, this disturbance of sensation preceding the jacksonian seizures. The tumor was located in such a way as to cover both the ascending and the parietal lobe. It was impossible to tell where it originated.

Tic Spasmodique Produced by Cerebellopontile Tumors

DR. HARVEY CUSHING, Boston: A patient was sent to the Brigham Hospital with the diagnosis of right parietal tumor

producing jacksonian attacks of the left face. He was conscious and could turn his head, even though the attack was going on. He was very certain on two or three occasions that the attack, and the spasm with the sensory disturbance, which he said came with it, had spread into the arm and side. A careful examination made it quite evident that this was a cerebellopontile tumor of the usual type. He was operated on and a tumor was found relatively early and removed, so far as one is justified in removing these things, leaving the capsule. In a series of from fifty to sixty pontine cases this was the only case in which I observed these definite attacks, and this began originally as nothing but a little blepharospasm of the left eye. The patient was having attacks every ten minutes when he came to us. They subsided after the operation. Since this I have seen one other example of almost exactly the same kind.

DISCUSSION

DR. J. RAMSAY HUNT, New York: In my papers on the sensory route of the facial nerve I have emphasized the production of reflex spasms of the face. I have had a series of cases of reflex quiverings and spasms of severe degree. In one case there was a spasm only of the auricular mechanism. Evidently only certain cells of the facial nucleus were in a state of excitability. Therefore I do not think that these cases necessarily depend on pressure on the pons.

DR. WILLIAM G. SPILLER, Philadelphia: Some years ago Dr. Mills had a case of spasm confined to one side of the face which at necropsy showed tumor of the cerebellopontile angle. I had a case of a man struck on the right side of the forehead. He said that the eyelids of both sides were affected. Dr. Jones concluded that there was a tumor of the cerebellopontile angle, and this was confirmed by necropsy.

DR. W. B. CADWALADER, Philadelphia: In a case which I have observed there were clonic movements of one side of the face without loss of consciousness. We decided that there was probably a cerebellopontile growth. Necropsy showed an endothelioma a short distance anterior to the eighth nerve.

Stock-Brainedness: The Causative Factor in the So-Called Crossed Aphasias

DR. FOSTER KENNEDY, New York: The cause of the indecision in regard to the location of the speech centers, and, therefore, the causation of aphasia, lies in the fact that apparently irrefragable evidence can be produce by the protagonists of each of the different views. The case used to disprove the validity of Broca's area only impugns the theory of constant conjunction of right-brainedness and left-handedness or vice versa. I want to suggest that the simple statement that a given patient is right-handed or left-handed is not adequate. After investigating the question of a patient's handedness only by investigating also the prevalence of the type of handedness in his stock shall we be able to throw some light on a very obscure chapter of neurologic medicine. In the literature of aphasia one finds that but few cases disagree with the general hypothesis that in right-handed persons the centers of language are situated on the left side of the brain. In the few instances in which aphasia has resulted from injury to the right brain, some anomalous and adventitious circumstance has usually been brought forward to account for the situation. It would appear that this trend when present in the stock may produce in a few right-handed individuals of the sinistral stock a condition of brain similar to their collateral relatives and ancestors, with the result that the speech area in such persons becomes developed in an ectopic position.

DISCUSSION

DR. HUGH T. PATRICK, Chicago: About thirty-three years ago Dr. Janeway gave us a sort of rule of thumb in deciding on who was right-handed and who was left-handed, that is, that a left-handed person must be a left-handed writing person. All other activities are of less importance.

DR. JOSEPH COLLINS, New York: It is currently reported that the majority of children are left-handed. However, credible statistics show that only about 5 per cent. of adults are left-handed. It is quite possible that some of these cases referred to by Dr. Kennedy are exceptions to the rule, which is that the speech area of left-handed individuals is on the right side of the brain. If Dr. Patrick will substitute "fighting" for "writing," I will agree with him. If a man fights with his left hand he is left-handed. If a man does the primitive things of life, the things that are necessary in order for him to continue his activities, he is a left-handed individual. I am a left-handed individual, and I do all such things as writing, golfing and drawing, with my right hand; but in striking, at least in doing any of the fundamental things, I am left-handed. I am inclined to believe that the executive speech area may be vicariously assumed by areas of the brain adjacent to the usual centers, which will explain the majority of cases which are exceptional to the generally established rule.

DR. E. B. ANGELL, Rochester, N. Y.: Some years ago a woman of 32 came to necropsy for brain tumor. As a child of 5 she had thrombosis of two thirds of the operculum and part of the motor tract of the left side. As a child she had been right-handed. As the result of the hemiplegia and loss of the power of the right arm, she had to develop the left hand. She regained the power of speech. At necropsy were found the remains of the destructive process of the old thrombosis. The right side corresponding to the right operculum and the right motor hemisphere were much enlarged. The cortex was much thickened, showing the influence of the change from right to left as she grew up to womanhood.

DR. CHARLES K. MILLS, Philadelphia: I think Dr. Collins is wrong about this thing of the primitive instinct of preservation. This does not have to do with the faculty of speech and development of one or the other hemispheres. It is the educational acquirements of the brain that have to do with this. If you have the inheritance of speech through many generations with the inheritance of right-handedness, the left-handedness in a given generation is then sort of an accidental deviation, and it does not have the force that it would have if the left-handedness had been inherited through many generations.

DR. J. RAMSAY HUNT, New York: I suggest that Dr. Collins is both right and wrong; that some of his functions he performs with the cortex and some with the globus pallidus. Many of the acts, for instance, fighting, must be referable to the automatic mechanism.

DR. BERNARD SACHS, New York: It is a fact that the majority of children are in the ordinary sense born ambidextrous, and the important thing is that most persons become later in life absolutely right-handed. Another point is that in the loss of speech the defect is associated with loss in the two hemispheres about equally, and it is only later in life that the preponderance of the left hemisphere has become well established. I believe that there are differnt groups of cases. The ordinary child born ambidextrous can be made a right-handed child. There are some persons who never can be made right-handed. I believe the larger number of persons are right-handed because they are made so by education.

DR. WILLIAM G. SPILLER, Philadelphia: A child born right-handed was burned in a gas flame and was unable to use the right hand for five or six weeks. During that time he used the left hand, and, when the bandage was removed, continued to use the left hand. It required training to induce the child to resume the use of the right hand. Undoubtedly if the effort had not been made to train the right hand, the child would have continued using the left hand.

DR. FRANCIS X. DERCUM, Philadelphia: If my recollection serves me correctly, the right side of the child is larger at birth. I think there is more muscle tissue in the right side than the left. It cannot be merely a matter of training, but, if the right hand is injured, the left hand is trained.

DR. HARVEY CUSHING, Boston: It may be of interest to call attention to the fact that right-handedness and left-handedness goes back into other forms of life than mammals. In certain shells, perhaps one out of 10,000, there is a left-handed spiral. Then, too, I believe that parrots are right-handed, or right-clawed, as a rule.

DR. ALFRED REGINALD ALLEN, Philadelphia: The blood supply of the human being and most mammals and verte-

brates is not symmetrical with the vertical axis. It is probable that the left side of the brain may get a better blood supply than the other side of the brain.

DR. ISAAC ADLER, New York: I have been making some cranial measurements and I ran across a peculiar relation of the right hemisphere. In the right-handed the right parietal lobe is more prominent than the left. In the left-handed person it is not so. It is about equal. The conclusion is that most left-handed persons, therefore, are ambidextrous.

Amyotrophic Lateral Sclerosis

DR. JOHN H. W. RHEIN, Philadelphia: The subject of this report was aged 56. The symptoms were atrophy of both arm muscles, including the small muscles of the hand, the flexors and the extensors of the forearm, the biceps, triceps, shoulder girdle, pectoralis and serratus magnus. There were fibrillary tremors of both arms. Both sides of the tongue were atrophied; the knee and arm jerks were exaggerated, but there was no Babinski sign or spasticity. The Wassermann reaction was positive. Death occurred about a year after the onset.

DISCUSSION

DR. F. R. FRY, St. Louis: Some years ago I reported a classical case of Friedreich's ataxia in a girl of 12 or 15 years of age. At a later period the mother of this girl, who was then about 42 years of age, developed amyotrophic lateral sclerosis. I simply mention that little coincidence as possibly interesting from an etiologic standpoint.

DR. SAMUEL LEOPOLD, Philadelphia: I have reported a similar case. The patient died within two years. I found some round cell infiltration. In about one third of these cases, syphilis plays a very important rôle.

Diffuse Endothelioma of Spinal Cord

DR. PETER BASSOE, Chicago, and DR. C. L. SHIELDS, Salt Lake City: The patient, a girl of 16 years, was taken with headache, vomiting and dizziness eight months before death. Later there were failing vision, two weeks of strabismus and finally complete blindness. Hearing also was lost. The optic disks showed secondary atrophy, and the tendon reflexes were lost. The spinal fluid showed lymphocytosis and increased albumin. There were convulsive seizures during the last two weeks before death. The necropsy revealed the unusual condition of a diffuse grayish-white thickening of the pia along the entire cord, most marked posteriorly. Histologically, this tumor proved to be endothelioma.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

May, XIX, No. 3, pp. 353-506

1 Studies on Mammary Gland in Albino Rat From Birth to Ten Weeks of Age. J. A. Myers, Minneapolis.
2 Relation of Coronary and Hepatic Arteries in Common Ganoids. C. H. Danforth, Washington, D. C.
3 Cell Clusters in Dorsal Aorta of Mammalian Embryos. V. E. Emmel, Washington, D. C.
4 General Functional Significance of Mitochondria. E. V. Cowdry, Baltimore.
5 Embryology of Bird's Lung. W. A. Locy and O. Larsell, Chicago.

Annals of Surgery, Philadelphia

May, LXIII, No. 5, pp. 513-640

6 Suggested Operative Steps Dealing With Spontaneous Intracerebral Hemorrhage (Apoplexy). C. M. Remsen, Atlanta.
7 Case of Complete Branchiogenic Fistula. C. N. Dowd, New York.
8 Surgical Treatment of Suppurations in Posterior Mediastinum; Report of Two Cases. V. Gaudiani, New York.
9 *Removal of Bullet From Pericardium; Report of Case. W. E. Lower, Cleveland.
10 *Case of Intrahepatic Cholelithiasis. R. Lewisohn, New York.
11 *Method of Correcting Stomach Dilatation in Gastroptosis. R. J. Behan, Pittsburgh.
12 Etiology of Cysts Connected With Hernial Sacs. R. W. Murray, Liverpool, England.
13 Lumbar Hernia; Report of Case. E. H. Goodman and J. Speese, Philadelphia.
14 *Perforating Ulcer of Foot and Varicose Ulcers of Leg and Their Treatment by Nerve Operations. J. C. J. C. Smits, Sumatra.
15 Plea for Immediate Reduction of Fractures. W. Darrach, New York.
16 Treatment of Injuries in Vicinity of Elbow Joint. H. M. Armitage and G. L. Armitage, Jr., Chester.
17 Fracture Dislocation of Astragalus. E. F. Robinson, Kansas City, Mo.
18 *Simplified Preoperative Treatment of Hands and Field of Operation. A. D. Whiting and M. A. Slocum, Philadelphia.
19 Double Uterus and Vagina With New Bloodless Operation (Forceps Pressure) for Correction of Deformity. A. E. Rockey, Portland, Ore.
20 Toxicity of Novocain-Epinephrin Injected Intravenously. J. R. Eastman, B. Erdman and H. K. Bonn, Indianapolis.

9. **Removal of Bullet from Pericardium.**—The principal feature in this case to which Lower calls attention is the method of approach; that is, the division of the cartilaginous attachment to the ribs and of the muscles between the ribs, so as to make, by retraction, a "V" exposure. By this method ample room is secured and the ribs are not fractured, a circumstance which retards convalescence and makes it much more painful.

10. **Intrahepatic Cholelithiasis.**—Lewisohn operated on a case of intrahepatic cholelithiasis in which the preoperative diagnosis was acute gangrenous cholecystitis or perforated duodenal ulcer. At operation the gallbladder was found distended to about twice its normal size, not tense; its walls were thin and showed no external signs of inflammation. The stomach itself was normal and a careful examination of the duodenum failed to show any sign of ulcer or perforation. The liver was enlarged to about one and one half times its normal size and showed extensive adhesions between the upper surface and the diaphragm. The whole diaphragmatic surface of the liver felt nodular; these areas were hard, some of them whitish in color. On the inferior surface of the liver, toward the anterior border, there was a markedly inflamed area belonging to the right lobe; in this part was seen a small abscess cavity, which had perforated and opened into the free peritoneal cavity. At the base of the cavity two small black gallstones were felt; the liver tissue was incised, and the stones removed. One of the nodules on the right lobe of the liver was incised; after splitting the capsule, a small hard nodule presented itself, about the size of a pea; the mass was whitish and hard (fibrous tissue?). From the center of this mass four small, black gallstones were removed. They were exactly like those which had been found on the under surface of the liver. The gallbladder contained about 30 c.c. of a turbid fluid and one-half dozen yellowish gallstones. The mucosa was only slightly inflamed and not thickened.

11. **Correcting Stomach Dilatation in Gastroptosis.**—The method devised by Behan is as follows: The stomach is exposed and a flap of serosa is freed from its anterior surface. The flap (½ inch wide) extends from the lesser curvature downward obliquely toward the greater curvature and fundus for about 3 to 4 inches. This flap is then inserted in a reversed direction through two flaps raised from the subjacent muscularis and is sutured in place. The raw surface is puckered in and the wound closed. The stomach in one instance was removed and examined after this operation. It was remarkably decreased in size. At the area of operation there was a very long ruga which projected into the lumen of the stomach. After the plication the muscle contracted and threw the mucosa into deeper folds. To sight and touch the gastric muscle was absolutely normal. Behan has used this method on two patients and so far the results have been very satisfactory.

14. **Perforating and Varicose Ulcers of Leg.**—The only modern surgical method of treatment in Smits' opinion that reckons with etiology is local treatment of the sore combined with stretching or laceration of the nerve, in the region in which this sore is situated. In the twenty-five cases of perforating ulcer of the foot cited by Smits the mere local surgical treatment was shown to be useless in all these cases,

even when combined with an absolute rest cure. The same surgical treatment combined with a nerve operation, whether executed once or repeatedly, always led to cure. Eighteen cases of varicose ulcer similarly treated are cited. Locally he applied a liquefied medicated gelatin made as follows: Dissolve in a water bath 20 parts of gelatin in 40 parts of water. To this add 10 parts of glycerin; mix with 15 parts zinc oxid previously ground up with 15 parts glycerin and add water enough to make 100 parts. Smits spreads a thick layer of this liquefied medicated gelatin over the leg and covers this while still wet with a thin layer of cellulose wadding, which immediately sticks and forms an immovable dressing. Over the layer of cellulose wadding a bandage of well starched gauze is placed. The patient remains in bed until the dressing is thoroughly dry.

18. **Preoperative Treatment of Hands.**—As a result of their investigations Whiting and Slocum conclude that a solution consisting of acetone, alcohol and one of the coal tar disinfectants of a high phenol coefficient is more efficient than any other agent used for skin sterilization. In such a solution, the acetone (dimethylketone) acts as a solvent of the fatty or oily material of the skin and thus aids in exposing the bacteria to the germicides. The alcohol acts as a solvent; it has the power to penetrate into the cracks and crevices of the skin, through its ability to decompose and remove small particles of air that may be present; it is germicidal in solutions as weak as 30 per cent. With its strongest germicidal powers in solutions ranging from 60 to 70 per cent.; it also acts as a good vehicle. The coal tar disinfectant that may be used acts simply as a powerful germicide, destroying all bacteria with which it comes in contact in a length of time varying with its coefficient and the degree of dilution. The advantages of such a solution are many. Patients do not complain of any irritation following its use, although it causes a burning sensation when used on the scrotum. It does not stain the skin. It reduces to a minimum the time consumed in preparing the field of operation, and its method of application is the simplest. It may be used on a wet or dry skin, for emergencies or for cases in which the consumption of time in preparing the patient is not of great moment. There is no exfoliation of the skin as is seen after the use of iodin, nor is there any blistering. It may replace all other solutions in sterilizing the hands, although its continuous use causes some irritation in some instances; in others, no effect is noticed; others say the application of the solution gives rise to a decided feeling of warmth. The solution may be used repeatedly, any collected detritus being removed by filtration. The authors suggest that a solution consisting of 35 per cent. acetone, 1 or 2 per cent. of a coal tar disinfectant of a high coefficient, with enough alcohol to make 100 per cent., would answer the purpose. The method of application consists in rubbing the field of operation for two minutes with a piece of gauze saturated with the solution after either a wet or dry shave. A warm, cleansing tub bath is always advisable when not contraindicated.

Archives of Internal Medicine, Chicago

May, XVII, No. 5, pp. 591-710

21 *Case of Multiple Abscesses of Brain in Infancy. J. B. Holmes, Baltimore.
22 *Studies on Pineal Gland. Experimental Observations. G. Horrax, Boston.
23 *Id. Clinical Observations. G. Horrax, Boston.
24 Adjustment of Pressures in Induced Pneumothorax. C. D. Parfitt, Gravenhurst, Ont.
25 *Sino-Auricular Block Due to Tobacco Poisoning; Report of Cases. S. Neuhof, New York.
26 Studies of Heart's Functional Capacity as Estimated by Circulatory Reaction to Graduated Work. T. B. Barringer, Jr., New York.
27 Present Status of Magnesium Sulphate in Treatment of Tetanus. H. E. Robertson, Minneapolis.
28 *Basal Metabolism in Obesity. J. H. Means, Boston.
29 *The Typhoidin Reaction. C. R. Austrian and A. L. Bloomfield, Baltimore.

21. **Multiple Abscesses of Brain in Infancy.**—The case reported by Holmes represents a rare condition; multiple large abscesses in the hemisphere of an infant under 2 years of age. It ran its course under the picture of chronic internal hydrocephalus. That chronic internal hydrocephalus of the communicating type was not present was shown clinically by the phenolsulphonephthalein test. The condition found at necropsy resembled closely that of multiple pyogenic abscesses of the left hemisphere. It was not possible, however, wholly to exclude multiple tubercles which had undergone puriform softening. Microscopically, the case is noteworthy in the unusual number of Gluge's corpuscles that are present.

22. **Experimental Observations on Pineal Gland.**—The results of an experimental study are given by Horrax. He found that total experimental pinealectomy is possible in guinea-pigs and rats. Pinealectomized male guinea-pigs show a hastened development of the sexual organs, manifested before maturity by a relative increase in size and weight, both of the testes and seminal vesicles, over control pigs of the same litter. Histologically the testes and seminal vesicles of these animals, if taken before the age of sexual maturity, show a more advanced physiologic state than their controls. The pinealectomized females appear to show a tendency to breed earlier than controls of the same age and weight. For several reasons, young rats are likely to prove better subjects for experimental pinealectomy than young guinea-pigs, and some evidence of hastened maturity has been obtained in this species.

23. **Clinical Observations on Pineal Gland.**—Clinical study of three cases of supposed pineal tumor demonstrated that tumors of the pineal gland in children occurring before the age of puberty usually give rise to a syndrome characterized by precocious adolescence. In the first case, there were no positive means of knowing whether or not the pineal is the organ mainly at fault. The history and findings, however, are suggestive, and conform to the symptom complex of Frankl-Hochwart, except that the patient was a girl 11 years of age. Adiposity, though not great, was present to a definite degree, this, with the other points, making the case very similar to Marburg's. There was an increase in the eosinophilic leukocytes. The second patient was a boy, 7½ years of age. In this instance Horrax was unable to say what part the pineal may or may not be playing in the syndrome. Clinically, however, the symptom complex was similar to that characterizing a pineal lesion, but without adiposity. The sexual side of the picture is decidedly in the foreground. There has been little intellectual attainment, the latter sphere having been greatly limited by the boy's environment. In the third case the lesion was certified in full. The patient was a boy, 12 years of age. There was a precocious adolescence; intracranial symptoms with diagnosis of tuberculous meningitis; xanthochromia. Necropsy revealed struma of the pineal gland. A striking feature of the tumor as a whole was the great number of lymphoid cells it contained. These were present both in large masses grouped together, and also as scattered elements throughout the growth without definite arrangement. This enormous development of lymphoid tissue in a patient 12 years of age brings out the possibility of associated lesions elsewhere in the body, especially in connection with the thymus and lymph glands. The limited necropsy prevented studies of these tissues.

25. **Sino-Auricular Block Due to Tobacco Poisoning.**—A study of the history and clinical course of the two cases cited by Neuhof showed that the two distinct types of arrhythmia, sino-auricular block and ventricular extrasystoles, were apparently caused by two different factors, the former by tobacco, the latter probably by myocarditis and nephritis. The sino-auricular block disappeared very soon after smoking was stopped; the extrasystoles, only when compensation was fully restored. The cases seem to substantiate, in a degree, the results of animal experimentation. In Case 2, the extrasystoles were the result of decompensation. The sino-auricular block represented the effects of nicotin poisoning on the vagus alone. Patient 1 had no organic disease. The moderate acceleration interspersed with irregularly occurring sino-auricular block was apparently a clinical prototype of the two opposed experimental effects of the tobacco alkaloid on the vagus and accelerator.

28. **Basal Metabolism in Obesity.**—According to Means the majority of obese subjects show no alteration in the basal

metabolism, as expressed in terms of their surface area, even though the obesity is of a most extreme type. Occasionally a slight reduction occurs and in such cases clinical evidence of disturbed internal secretion is present.

29. **Typhoidin Reaction.**—The typhoidin reaction carried out by Austrian and Bloomfield in sixty-six individuals failed to furnish data by means of which it was possible to differentiate between those who had neither had typhoid nor received prophylactic vaccination and those who had either had the disease or had been artificially immunized against it.

Boston Medical and Surgical Journal

May 25, CLXXIV, No. 21, pp. 739-774

30 Pediatrics as Specialty in Smaller Cities. A. C. Eastman, Springfield.
31 Management of Gonorrhea. J. D. Barney, Boston.
32 Ophthalmia Neonatorum. G. H. Thompson, North Adams.
33 Ringworm in Children. E. L. Oliver, Boston.
34 Results of Open Air Treatment of Pneumonia in Children. A. R. Cunningham, Boston.
35 Tuberculous Infection in Children. H. W. Dana, Boston.

Cleveland Medical Journal

April, XV, No. 4, pp. 215-314

36 Treatment of Syphilis During First Six Months After Infection. W. T. Corlett, Cleveland.
37 Treatment of Peritonitis. G. W. Crile, Cleveland.
38 Effect of Vitamines on Body Growth. M. D. Shie, Cleveland.
39 Intraspinous Treatment of Neurosyphilis With Standardized Salvarsanized Serum. W. C. Stoner, Cleveland.
40 Pedicle Clamp, Specially Designed for Use in Nephrectomy. W. E. Lower, Cleveland.
41 Congenital Club Foot. G. I. Bauman, Cleveland.
42 *Compressed Air (Caisson) Disease, Discussion of Etiology From Standpoint of Physical Laws. T. S. Keyser, Cleveland.
43 Importance of Roentgen Ray Examination in Clinical Diagnosis; Report of Case. J. D. Osmond, Cleveland.
44 Trouble, Double, Double, Pathologic and Professional. M. J. Lichty, Cleveland.

42. **Compressed Air (Caisson) Disease.**—A typical case of caisson disease eventuating in recovery is reported by Keyser. It is shown that the various congestion theories are quite fully refuted by a simple application of certain fundamental laws of physics, while the gaseous theory is fully supported by these same laws. The characteristic pains and rigidity are considered to be due largely to the irritative nature of the cord lesions. The relief of urinary retention by the administration of pituitary extract is of special importance for the reason that cystitis is a most serious complication in the disease. The onset of recovery following lumbar puncture is an interesting observation in this case.

Indiana State Medical Association Journal, Fort Wayne

May, IX, No. 5, pp. 179-222

45 Surgical Diseases of Stomach. M. F. Porter, Fort Wayne.
46 *Some Points in Early Physical Diagnosis of Pulmonary Tuberculosis. A. C. Kimberlin, Indianapolis.
47 *Thoracoplasty for Chronic Empyema. W. D. Gatch, Indianapolis.
48 Value of Renal Functional Test in Surgery. T. M. Jones, Anderson.
49 *Some Surgical Disorders of Upper End of Femur. B. P. Weaver, Fort Wayne.

46, 47 and 49. Abstracted in THE JOURNAL, Nov. 20, 1915, pp. 1846 and 1848.

Journal-Lancet, Minneapolis

May 15, XXXVI, No. 10, pp. 279-308

50 Embryology and Medicine. C. M. Jackson, Minneapolis.
51 Extra-Uterine Pregnancy With Especial Reference to Early Diagnosis; Report of Seven Cases. D. L. Scanlon, Volga, S. D.
52 Study of Abdominal Wall in Its Relation to Hernia. E. R. Hare, Minneapolis.
53 Present Status of Immunology. L. D. Bristol, University, N. D.

Journal of Medical Research, Boston

May, XXXIV, No. 2, pp. 131-272

54 *Antagonistic Action of Negative Serum on Wassermann Reaction. A. W. Sellards and G. R. Minot, Boston.
55 Histopathology of Intestines in Young Chicks Infected With Bacterium Pullorum. G. E. Gage and J. F. Martin, Boston.
56 *Agglutination Reaction With Serum Derived From Human Cases of Leprosy and From Experimental Animal on Various Members of Acid Fast Group. W. H. Harris and J. A. Lanford, New Orleans.
57 *Simplified Method of Producing Potent Precipitin Serum. W. V. Smith, Louisville, Ky.
58 Pathologic Study of Naturally Acquired Chronic Nephropathy of Dog. W. deB. MacNider, Chapel Hill, N. C.
59 Pathologic and Physiologic Study of Naturally Nephropathic Kidney of Dog, Rendered Acutely Nephropathic by Uranium or by Anesthetic. W. deB. MacNider, Chapel Hill, N. C.
60 *Blood Lipase in Health and Disease. Z. Sagal, New York.
61 Toxic Lesions of Suprarenal Gland and Their Repair. G. S. Graham, Boston.
62 *Study of Acidosis in Three Normal Subjects, With Incidental Observations on Action of Alcohol as Antiketogenic Agent. H. L. Higgins, F. W. Peabody and R. Fitz, Boston.

54. **Antagonistic Action of Negative Serum on Wassermann Reaction.**—In the clinical application of the Wassermann reaction it is generally agreed that there are a relatively large number of cases of syphilitic infection especially in the tertiary stage, in which the test is negative. It would evidently be desirable to secure some method in which a negative reaction would justify the exclusion of syphilis. The possibility suggests itself to Sellards and Minot that syphilis could be excluded if the serum under examination gives strong hemolysis in the presence of a trace of positive serum. Indeed, when no trace of hemolysis occurs under these circumstances it is desirable to search especially carefully for evidences of syphilis. While it is certainly not desirable to increase the sensitiveness of the Wassermann reaction by reenforcing the antigen any further or by increasing the amount of patient's serum which is used, it is still possible that the addition of a trace of positive serum to a negative one might act in a very different direction and, by neutralizing the antagonistic property of normal serum, bring out obscure or weak reactions. This would be of interest, not in the routine Wassermann test, but only for purposes of experimental study.

56. **Agglutination Reaction with Leprosy Serum.**—The agglutinin present in the serum of the human subject affected with leprosy is usually low in titer and inconstant in its action. The employment of this procedure, therefore, has proved of no avail in serving to authenticate any of the various cultures isolated from the leprous lesion of the human as the Hansen bacillus. The serums derived from rabbits inoculated with various bacillary antigens yield agglutinins likewise inconstant in amount and erratic in their action. Serums derived from these inoculated animals do not serve to differentiate the various species employed in these experiments, but suggest a group relationship. Until some further refinement in these procedures is devised, Harris and Lanford assert that but little reliability can be placed on this type of test as a means of identification of any culture isolated from the lesion of leprosy as the bacillus of Hansen.

57. **Method of Producing Potent Precipitin Serum.**—Smith points out that in many places human blood, or human blood serum, cannot be readily obtained. When a quantity of blood can be gotten at once, such as is present in a placenta, it may be precipitated with ammonium sulphate and kept on hand for a long time, at least nine months, and no doubt indefinitely. The precipitated protein is capable of producing a potent precipitin rabbit serum, when injected intraperitoneally. The danger to the animal to be injected is reduced by using this precipitate, as a smaller quantity of material is injected and the precipitate thus prepared is sterile or nearly so. The precipitate can be kept on hand and be readily used in case of emergency.

60. **Blood Lipase in Health and Disease.**—The serum of patients suffering from bacterial diseases, Sagal claims, show a slight increase in enzyme activity, while the serum obtained from sufferers of diseases of nonbacterial origin show a slight depression. Bile stained serum and the serum from hepatic cirrhosis show marked decrease in enzyme activity. Lipase activity gradually decreases with increasing age. Variation of lipase activity in diseased conditions, as shown by the hydrolysis of ethyl butyrate, are so small as to be devoid of diagnostic or prognostic value.

62. **Study of Acidosis; Action of Alcohol as Antiketogenic Agent.**—In three healthy subjects studied by Higgins, Pea-

body and Fitz a carbohydrate free diet caused the development of varying degrees of acidosis. The acidosis was shown by a lowered CO_2 tension of the alveolar air, by an increased urinary excretion of ammonia nitrogen, and of acetone bodies and by the increase titratable acidity of the urine. The acidosis was accompanied by subjective sensations of malaise, an increased oxygen consumption, a negative nitrogen balance, increased pulse rate and increased ventilation. Alcohol given to the subjects on this diet in dosage comparable to that used for clinical purposes did not stop the progress of the acidosis or show any antiketogenic action. Coincidental with its administration there was further increase in the oxygen consumption, and in the disagreeable subjective symptoms.

Journal of Nervous and Mental Disease, Lancaster, Pa.

May, XLIII, No. 5, pp. 393-488

63 *Tabes Dorsalis. Pathologic and Clinical Study of Two Hundred and Fifty Cases. B. Lucke, Philadelphia.
64 Hydromyelia and Hydroencephalia; Report of Case. A. Gordon, Philadelphia.
65 *Abnormal Relation Between Liver and Brain Weights in Forty-Two Cases of Epilepsy. D. A. Thom, Palmer, Mass.
66 Case of Atypical Multiple Sclerosis With Bulbar Paralysis. S. Krumholz, Chicago.
67 Case of Peripheral Neuritis With Korsakow's Symptom Complex. A. A. Wilson, Washington, D. C.

63. **Tabes Dorsalis.**—The symptoms and pathologic findings of 250 cases of tabes dorsalis are analyzed by Luckę. Two hundred and seven, or 82.8 per cent., are white males; 29 or 11.6 per cent. are white females; 13 or 5.2 per cent. are black males; 1 or 0.4 per cent. is a negress. Only 141 or 56.4 per cent. admitted syphilis. The average period of years was 15.34 which elapsed between primary sore and beginning tabetic symptoms. There were no cases of so-called juvenile tabes. Lancinating pains, somewhere in the body, lead the percentages (31.2) of the initial symptoms and occupy first place in the total (71.6). In the 169 cases (67.6) which showed sphincter disturbances, the rectal sphincter was affected in 70 and the vesical sphincter was affected in 143. Girdle sensation was present in 31.2 per cent. Loss of sexual power was noted in 11.2 per cent. Anosmia and deafness were each observed in 2 cases or 0.8 per cent. Insanity, other than paresis in locomotor ataxia, occurred in 6 cases or 2.4 per cent.

Knee jerks were absent in 90 per cent. Romberg's phenomenon was present in 241 cases or 96.5 per cent. Arthropathies occurred in 23 cases or 9.2 per cent.; in 7 cases there was bilateral arthropathies. The joints affected were: right knee joint in 9 cases; left knee joint in 5 cases; both knee joints in 4 cases; right knee joint and metatarsophalangeal joints in 1 case; both ankle joints in 2 cases; left ankle joint in 1 case. In one case Charcot joint (knee) occurred as the first symptom of tabes. Spontaneous fracture occurred in but one case, a woman, who suffered about ten years after the onset symptoms, a fracture of the femur. This fracture was the result of a slight fall. The fracture caused but little, if any, pain. At the present time, six years after fracture, union has not taken place. Malperforant was found in 8 cases or 3.2 per cent. The perforant ulcer always occurred on the foot. Footdrop occurred in 9 cases or 3.6 per cent. Hemiplegia and tabes occurred in 6 cases or 2.4 per cent.

Visual disturbances occurred in 109 cases or 43.6 per cent. of these; failing eye sight occurred in 63 cases or 25.2 per cent.; diplopia occurred in 46 cases or 18.4 per cent.; optic atrophy occurred in 37 cases or 16.0 per cent.; nystagmus occurred in 23 cases or 9.2 per cent. It is of interest to note that in one of two blind cases Romberg's sign is not so great with eyes open, while he promptly will sway and even fall to the ground if he closes his eyes. The other case has a marked Romberg's, which is more decided with eyes closed. Typical Argyll Robertson pupil occurred in 200 cases or 80 per cent.; sluggish reactions or no reactions occurred in 32 cases or 12.8 per cent.; normal reactions occurred in 18 cases or 7.2 per cent.; unequal pupils occurred in 86 cases or 33.6 per cent.; irregular pupils occurred in 34 cases or 13.6 per cent.; unequal and irregular pupils occurred in 20 cases or 8 per cent.; ptosis of both eyelids occurred in 17 cases or 6.8 per cent.; ptosis of left eyelid occurred in 16 cases or 6.4 per cent.; ptosis of right eyelid occurred in 4 cases or 1.6 per cent.; and paresis of eye muscles occurred in 30 cases or 12.0 per cent.

65. **Abnormal Liver and Brain Weights.**—In twenty-six (62 per cent.), in this series of forty-two cases studied by Thom, the brain outweighed the liver. Of the sixteen cases in which the relative liver and brain weight was normal, in only two were the weights of the liver and brain both within the normal limits in the same case, namely, forty of the forty-two cases studied revealed either an abnormal relation between the liver and brain weights, or that one of the organs was of abnormal weight. In some cases both conditions were true. The most common gross abnormalities named in order of their frequency were as follows: atrophy of liver, atrophy of brain, overweight of brain (probably due to edema or hydrocephalus), hypertrophy of liver.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

May, VIII, No. 5, pp. 205-271

68 *Liberation of Epinephrin From Suprarenal Glands by Stimulation of Splanchnic Nerves and by Massage. G. N. Stewart, J. M. Rogoff and F. S. Gibson, Cleveland.
69 *Rôle of Liver in Acute Polycythemia. Relation of Plasma Volume to Number of Erythrocytes Per Unit Volume of Blood. P. D. Lamson and N. M. Keith, Baltimore.
70 *Action of Certain Volatile Oils on Isolated Intestinal Segments. A. L. Muirhead and H. F. Gerald, Omaha.
71 *Pharmacology of Ureter. Action of Drugs Affecting Sacral Autonomics. D. I. Macht, Baltimore.

68. **Liberation of Epinephrin from Suprarenal Glands.**—It is shown by the authors that the response of the denervated eye to stimulation of the peripheral end of the splanchnic nerves, is due solely to the passage of a substance in the blood stream from the suprarenals to the eyeball. When the venous path is blocked the response fails, but appears on releasing the block. When the heart is stopped by stimulation of the peripheral end of the vagus, stimulation of the splanchnics produces no effect on the eye. But on allowing the heart to beat again, the eye response occurs at approximately the same time from the moment of reestablishment of the circulation, as the time interval between stimulation of the splanchnics and the response with the circulation going on normally. When the circulation is slowed without being stopped, the interval between the beginning of stimulation of the splanchnics and the appearance of the eye response is correspondingly increased. When epinephrin is injected into the left renal vein, or into the central end of the femoral vein, in suitable amount to produce an eye response approximately equal to that produced by a given stimulation of the splanchnics, the interval of time after which the response follows is sensibly the same for epinephrin injection as for splanchnic stimulation. When the aorta is clamped, and the splanchnic then stimulated, a response may be obtained in the eye while the clamp is still on, or only after its removal, or both during the application and after removal of the clamp.

Circulation time measurements show that there is always more than sufficient time for a substance to have been carried in the blood from the suprarenals to the eye before the appearance of the eye reactions. The minimum period of stimulation of the splanchnics needed to liberate sufficient epinephrin to elicit a response in the denervated eye is very brief (a fraction of a second). Massage of one or both suprarenals causes definite eye response in an animal in which stimulation of the splanchnics has been causing it, and at the same interval of time. When, after repeated excitations of a splanchnic nerve, the reaction on the eye ceases to be obtained, it can still in general be elicited by massage of the corresponding suprarenal. But this reaction is soon exhausted.

69. **Rôle of Liver in Acute Polycythemia.**—It has been demonstrated by Lamson and Keith that when the hepatic artery is ligated, the intravenous injection of epinephrin causes a decrease in plasma volume, without an increase in the number of erythrocytes per unit volume of blood. Further plasma volume and the number of erythrocytes per unit volume of blood may vary independently of one another.

70. Action of Volatile Oils on Intestinal Segments.—The following oils were studied by Muirhead and Gerald: pennyroyal, tansy, wormwood, turpentine, rue, anise, savin and thymol. A number of these oils produce quite marked stimulation of isolated intestinal segments when applied in dilutions of 1 to 50,000 to 1 to 25,000. This is especially true of oil of anise, oil of turpentine and oil of wormwood. All of the oils produced relaxation of intestinal segments when applied in dilutions of 1 to 5,000 to 1 to 10,000.

71. Action of Drugs Affecting Sacral Autonomics.—Macht found that pilocarpin, physostygmin, muscarin, pseudomuscarin and cholin, in suitable doses all stimulate the rate and force of the ureteral contractions and increase the tonus of the excised ureter. Large doses of pilocarpin may, however, secondarily paralyze that organ. The pressor action of pilocarpin, physostygmin and muscarin, is not inhibited by previous exhibition of ergotoxin. Atropin in sufficient (rather large) doses, inhibits the contractions and decreases the tonicity of the ureter. Small doses of atropin may produce, though not invariably, a primary stimulation of the ureteral contractions. The same effects as in the ureteral preparations described by the author, were noted in rabbits by observing the ureters in situ, after administration of pilocarpin, physostygmin and atropin. The behavior of the ureter toward the drugs studied, Macht says, gives pharmacologic proof of its innervation by the sacral autonomics, and is also of some practical interest.

Modern Hospital, St. Louis

May, VI, No. 5, pp. 311-392

72 New York Orthopedic Hospital Has New Home. L. M. Franklin, New York.
73 Is Mechanical Ventilation in Hospitals Success? F. Sutton, New York.
74 Orange Memorial Hospital — Analysis of Statistical Data. F. L. Hoffman, Newark, N. J.
75 Cambridge Hospital's New Home and Fine Organization. C. N. Cogswell, Boston.
76 Some Convenient Accessories for Roentgenotherapy. E. Blaine, Chicago.
77 Coffee Substitutes and Hygienic Coffees. J. P. Street, New Haven, Conn.
78 Architecture of A. D. Price Memorial Hospital, Harrodsburg, Ky. H. E. Hannaford, Cincinnati.
79 Intern's Side of Hospital Service. G. K. Dickinson, Jersey City, N. J.
80 Residence Made Over Into Good Hospital. J. R. Kingsley, Three Rivers, Mich.

New York Medical Journal

May 20, CII, No. 21, pp. 961-1008

81 Tonsilloscope. T. R. French, Brooklyn.
82 Ineffective Appendicectomies. R. T. Morris, New York.
83 Specific Therapy in Certain Acute Infectious Diseases. F. J. Dever, Philadelphia.
84 Potassium Iodid Poisoning. R. W. Wilcox, New York.
85 Curatelle and Modern Psychiatry. (To be continued). G. W. Jacoby, New York.
86 Cancer of Breast. J. E. Jennings, New York.
87 Gas Gangrene. E. K. Tullidge, Philadelphia.
88 Collecting Blood by Venepuncture. L. Thompson, Hot Springs, Ark.
89 Concealed Measles. R. Opdyke, New York.
90 Pathologist, Family and Family Physician. M. T. Hansell, New York.

Providence Medical Journal

May, XVII, No. 3, pp. 125-172

91 Importance of Anaphylaxis in Clinical Medicine. G. Blumer, New Haven, Conn.
92 Intraspinal Treatment of General Paresis and Tabes Dorsalis; Report of Cases. F. E. Webb, Providence.
93 Laryngeal Paralysis in Tabes. F. M. Adams, Providence.
94 Primary Sarcoma of Sclerocorneal Juncture Treated With Jequirity. V. L. Raia, Providence.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

May, XXIV, No. 5, pp. 129-160

95 Acute and Subacute Metastases. A. L. Blesh, Oklahoma City.
96 Treatment of Nevus. J. L. McDermott, Kansas City, Mo.
97 Syphilis of Cardiovascular System. L. J. Moorman, Oklahoma City.
98 Trachoma. D. W. White and P. C. White, Tulsa.
99 Cerebral Syphilis. J. W. Duke, Guthrie.
100 Syphilis of Nervous System. A. D. Young, Oklahoma City.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

May, XIII, No. 149, pp. 129-160

1 Hearing Tests in School Children. M. Yearsley.
2 *Nephritis Without Albuminuria. J. P. Parkinson.
3 Case of Dyspituitarism in Girl, Aged Fifteen Years. S. Stephenson.
4 Retrospect of Otology, 1915. M. Yearsley.

2. **Nephritis Without Albuminuria.**—The case cited by Parkinson began as pneumonia in a boy of 3½ years of age. A few days after his recovery slight edema appeared on the face, and the next day the face was extremely swollen, as also were the arms, hands, feet and legs, and the wall of the trunk. There was no evidence of fluid in the chest or abdomen. From now the urine was examined daily, but no albumin was ever found. Microscopically a few granular and hyalin casts and an odd red corpuscle or two were found on centrifugalizing. The amount of urine passed daily was normal, and fairly abundant urates were deposited on standing. On the third day the patient got very stupid, but not exactly drowsy. The blood pressure on this date was 90 mm. The edema began to disappear after three or four days under hot air baths and saline purgatives, and after ten days all casts and blood had disappeared from the urine, only a few epithelial cells from the bladder being seen on centrifugalizing. Parkinson believes this child to have had an attack of acute nephritis following but not due to pneumonia, causing edema and the presence of casts and blood cells in the urine, but without albuminuria.

British Medical Journal, London

May 6, I, No. 2888, pp. 641-676

5 Suture of Nerves and Alternative Methods of Treatment by Transplantation of Tendon. (To be continued.) R. Jones.
6 *Case of Congenital Atresia of Duodenum Treated Successfully by Operation. N. P. Ernst.
7 Some Hints on Time Saving in Operations. E. Harrison.
8 Dressings Used in Casualty Clearing Station. A. Don.
9 Case of Acute Urinary Infection With Paratyphoid B Bacillus. C. Worster-Drought and A. M. Kennedy.
10 Case of Ganglioneuroma of Sympathetic. D. R. Adams.
11 Therapeutic Value of Hypochlorous Acid. R. F. Cordova.
12 Simple Method for Intravenous Injection of Eusol. J. M. Graham.

6. **Congenital Atresia of Duodenum.**—Ernst's patient was only 12 months old. From the first the child always vomited after suckling. On the third day it took the breast more actively than at first, but two or three hours later it began to vomit, with almost explosive violence. Very little urine was passed, and the motions were limited to a small amount of typical meconium, without a particle of digested milk. The child was treated both with castor oil and enemas. Rectal examination revealed no abnormal condition of the bowels. The child lost weight rapidly. Ernst made a diagnosis of high-seated intestinal stenosis or atresia and suggested an operation. On opening the peritoneum the dilated stomach protruded into the wound, and was traced along the dilated pylorus into the duodenum, which was uniformly of about two fingerbreadths in width, so far as it could be traced to the upper side of the transverse mesocolon. But below the colon, where the intestine reappeared, at the flexura duodenojejunalis, it was seen to have collapsed to the caliber of an ordinary pencil, about 8 millimeters in diameter. The remaining part of the small intestine was normal. Ernst made a duodeno-entero-anterior anastomosis—that is to say, a coil of small intestine about 4 inches below the flexura duodenojejunalis was drawn up in front of the transverse colon, and united to the duodenum about the junction of the pars superior and pars descendens. Anastomosis to the lower part of the pars descendens was impracticable. The child made a complete recovery and is now alive and well.

Edinburgh Medical Journal

May, XVI, No. 5, pp. 337-416

13 Crossed Aphasia. B. Bramwell.
14 Roentgenography of Thorax in Children. J. S. Fowler.

15 Enucleation of Eyeball Under Local Anesthesia. H. M. Traquair.
16 Physicians in Zola's History of Rougon-Macquart Family. J. B. Adams.
17 Case of Congenital Cutaneous Outgrowth. D. M. Greig.

Glasgow Medical Journal

May, LXXXV, No. 5, pp. 313-375

18 Prevention and Treatment of Some Obscure Conditions Complicating Convalescence After Gastro-Enterostomy. A. MacLennan.
19 *Subacute Anterior Poliomyelitis. A. W. Harrington and J. H. Teacher.

19. Subacute Anterior Poliomyelitis.—The patient whose case is cited by Harrington and Teacher was an elderly woman who presented a flaccid paralysis beginning in the peroneal group, extending rapidly to the upper extremities, and finally involving the muscles of respiration. The paralysis appeared first, and later atrophy of the affected muscles became marked. No fibrillary tremors were observed. Repeated and thorough examinations showed that there were no disturbances of sensation beyond occasional shooting pains. The sphincters were not affected. The reflexes were early abolished. An examination of the electrical reactions on admission showed reaction of degeneration fully developed in the affected muscles of the left leg and incomplete in the right leg. The Wassermann reaction was not ascertained, but there was no history or suggestion of syphilis. The patient died from involvement of the diaphragm and intercostal muscles, the duration of the illness being probably less than a year. Clinically, the diagnosis lay between peripheral neuritis and anterior poliomyelitis. The pathologic report was wholly in support of the latter diagnosis. The principal features were the advanced degenerative changes in the ganglion cells of the grey matter of the spinal cord, and to a less degree in the medulla and pons, and the absence of tract degenerations and peripheral neuritis. A second patient, a woman of 48 years, exhibited a flaccid paralysis beginning in the peroneal group of muscles, rapidly extending to the upper extremities, and finally involving the muscles of respiration. The paralysis preceded the atrophy. Reaction of degeneration was present, but there were no fibrillary tremors. There was no disturbance of sensation beyond occasional shooting pains in the right leg. The duration of the illness was less than one year. The diagnosis was indicated by the somewhat selective nature of the palsy, by the distinct atrophy which followed, and by the complete absence of sensory disturbance. Clinically, the case could be definitely distinguished from progressive muscular atrophy and peripheral neuritis. Pathologically there was degeneration of the lower motor neurones. The case probably should be regarded as a subacute poliomyelitis.

Journal of Tropical Medicine and Hygiene, London

May 1, XIX, No. 9, pp. 101-116

20 Epidemic Cerebrospinal Meningitis as Seen in Anglo-Egyptian Sudan. A. J. Chalmers and W. R. O'Farrell.

Lancet, London

May 6, 1, No. 4836, pp. 913-980

21 Infantile Mortality and Relative Practical Value of Measures Directed to Its Prevention. S. G. Moore.
22 Some Factors in Pathology of Gas Gangrene. W. d'Este Emery.
23 Visual Standards Used in Medical Examination of Recruits in British Army and Continental Armies. J. V. Paterson and H. M. Traquair.
24 *Spinal Anesthesia With Special Reference to Use of Novocain. C. C. Holman.
25 Clinical Manifestations of Gas in Military Mines. C. E. Sundell.
26 Cases of Foreign Bodies in Bladder Resulting from Gunshot Wounds. G. G. Turner.
27 *Ulcerative Stomatitis. K. Goadby.

24. Novocain in Spinal Anesthesia.—Holman emphasizes the fact that spinal anesthesia is a method which must be employed with scrupulous care and attention to detail. He says that it is more suitable for use in hospitals in which the nursing staff is familiar with the technic and after-treatment, than it is for casual operations in private practice. Like many valuable operations it has sometimes obtained a bad reputation through improper performance.

27. Ulcerative Stomatitis.—Ulcerative stomatitis, often preceded by or accompanied with sore throat, is appearing sporadically among the troops in France as well as in some of the English camps. A smear preparation made by Goadby from the gums, cheeks, or throat and stained by Giemsa's method showed innumerable bacteria of two morphologic forms: (1) *Bacillus fusiformis* and (2) spirochetes, both gram-negative. Stained by Leishman's stain or Giemsa the fusiform bacilli were seen to be diplobacilli 6 to 7 microns in length, with pointed extremities; the thickened ends being in apposition with a small clear area between, somewhat resembling the sheath form of the *Bacillus diphtheriae*. The organism is longer and larger than the diphtheria bacillus and is slightly curved; plasmolysis is common. The second or spirillum form closely resembles the spirillum of relapsing fever as seen in blood films; it is wavy in outline, irregular in form, and without the characteristic regular "screw" form seen in *Spirochaeta pallida*. Many of the organisms show unmistakable spiral form; the "turns" of the thread are but four to six in number, the ends may be pointed, but the organism is usually about the same diameter throughout; in hanging-drop preparations from the tissue it is not motile. The organism is an obligatory anaerobe and is also serophile.

Quarterly Journal of Medicine, London

April, IX, No. 35, pp. 165-256

28 *Experimental Investigation on Diarrhea and Vomiting of Children. E. Mellanby.
29 *Quantitative Determination of Amylase in Blood Serum and Urine as Aid to Diagnosis. P. Stocks.
30 Urticaria Tuberosa of Willan; Report of Cases. J. A. Nixon.

28. Diarrhea and Vomiting of Children.—Some years ago an extremely active and toxic substance known as beta-imidazolylethylamin (throughout this paper called β-i) from ergot. It is derived from histidin, a harmless substance by the removal of carbon dioxid. The experimental portion of Mellanby's work was carried out on the assumption that β-i is one of the most important factors in epidemic diarrhea and vomiting. Various hypotheses involving β-i as the cause of such symptoms can be formulated: 1. That in diarrhea and vomiting there is excessive production of β-i in the intestine due either to: (*a*) a changed or increased bacterial flora; (*b*) a changed chemical or physical condition which prevents the absorption of histidin of the food and allows a subsequent increased production of β-i; or to (*c*) a changed condition which allows bacteria acting on histidin to produce a relatively large amount of β-i rather than innocuous products (such an innocuous product might be beta-imidazolylacetic acid). 2. That in diarrhea and vomiting there may or may not be an increase of β-i, but the β-i, present in the alimentary canal and mucous membrane, becomes active in some way, and is absorbed into the blood stream at a time when the animal is incapable of resisting its toxic action and rendering it innocuous.

The most important results obtained by Mellanby in this research from a practical point of view are as follows: First, as regards the absorption of toxins like β-i from the intestine: There is a marked delay in the absorption of toxic substances, normally in the intestine, when animals are injected with large quantities of fluid. Water in the intestine delays the absorption of toxic substances. During the digestion of foodstuffs generally, meat, milk, sugar and fat, there is a delay in the absorption of toxic substances. The presence of bile in the intestine delays the absorption of toxic substances. Magnesium sulphate, of a concentration of 2 per cent. or over, delays the absorption of toxic substances from the intestine. A less concentration of magnesium sulphate has no effect. Morphin below the point of being a serious menace to the respiratory center, has no effect on the absorption of toxic substances. Secondly, as regards the resisting power of the animal toward absorbed toxic substances: The resistance of an animal against toxic substances is very greatly increased by the injection of fluid into the circulation. An animal with a diminished amount of fluid, and particularly after the loss of a small amount of blood, has little power of resistance against toxic substances. An animal's resistance is greatly

increased after it has absorbed from the intestine food, and more particularly meat. During the digestion of fat, toxic substances absorbed from the intestine have a diminished action, at least for some hours. Clinically, a child suffering from diarrhea and vomiting owing to loss of fluid, loss of bile salts, with an empty intestine and in a starving condition, is in an ideal position for allowing toxic substances normally present in the alimentary canal and mucous membrane to be rapidly absorbed and have their full toxic action. The association of this disease with a high atmospheric temperature in an epidemic form is to be explained largely by the additional loss of fluid due to evaporation of water, whereby the child keeps down its body temperature. Hence, of all treatment in this condition, the one thing essential is to get the volume of body fluids of the child back to normal or above normal by intravenous or subcutaneous injection of saline solution.

29. **Amylase in Blood Serum and Urine.**—Amylolytic ferment is present in definite quantity 6.6 to 8 units according to Stocks in the blood serum and urine of all healthy individuals, and has also been found in all the body fluids examined. The level is practically constant in the blood serum—the level in the urine is subject to diurnal variations due chiefly to the digestive functions. The ferment is of pancreatic origin and is absorbed directly by the blood. No proof of the action of antiamylase has been found. Disease of the kidneys causing any diminished permeability of these organs reduces the amount of ferment in the urine and consequently raises the amount in the blood. Any disturbance in the ratio D (blood) : D and M (urine) indicates renal insufficiency in all such cases. Severe passive congestion also raises the amount of amylase in the blood. With these exceptions any increase of the ferment in the blood serum denotes pancreatic mischief. The values have been found raised by Stocks in all cases of pancreatic disease, the increase depending on the degree of obstruction in any part of the gland or its ducts, and on the acuteness of the condition. The highest values were found in a case of acute pancreatitis. The estimation of the amylolytic capacity of the blood serum and the urine is a most delicate test of the efficiency of the pancreas, and consequently is a most delicate and reliable test for disease of the pancreas. A simplified modification of Wohlgemuth's method was used by Stocks in his work.

Annales de Médecine, Paris

March-April, III, No. 2, pp. 109-192

31 *Congenital Ectasia of Pulmonary Artery in Man of 65. (Cas d'ectasie simple congénitale de l'artère pulmonaire observée chez un tuberculeux entaché de syphilis cérébro-spinale présentant des nodules kystiques à distribution symétrique sur tout le corps.) E. Lenoble.

32 *Cobra Venom Serum Test of Function. (Sur l'activation du venin de cobra par le sérum de malades atteints d'affections rénales.) E. Duhot.

33 *Action of Antiseptics in War Wounds. (Action des antiseptiques et plus spécialement des hypochlorites alcalins sur les leucocytes du pus et les albumines constituées des plaies de guerre.) N. Fiessinger, C. O. Guillaumin, P. Moiroud and G. Vienne.

34 Paratyphoid Simulating Cholera. (Syndrome cholériforme et bacilles paratyphiques.) Grall and G. Laroche.

35 *Wounds of the Chest. (Notes à propos de 122 cas de plaie de poitrine.) M. Maillet.

31. **Ectasia of Pulmonary Artery.**—Lenoble's case was remarkable on account of the absence or mildness of symptoms from the combination of congenital ectasia of the pulmonary artery, cerebrospinal syphilis, pulmonary tuberculosis and about twenty cystic nodules scattered symmetrically over the body. The man of 65 was a day laborer and had raised fourteen children. One of the cysts was located in the fourth ventricle but the man succumbed to rapid pulmonary tuberculosis.

32. **Cobra Venom Hemolytic Test with Nephritis.**—Duhot gives the findings in the serum from twenty-six patients with kidney disease and seventy-seven with various other affections. The findings were positive with remarkable constancy in the serum from patients with kidney trouble of any kind. The reaction was also peculiarly prompt and peculiarly intense in them, regardless of the clinical severity of the kidney disease and of the absence or presence or degree of uremia. Positive findings to a lesser degree were obtained also in other conditions in which the lipoid content of the serum is generally augmented, as in pregnancy, diabetes and infectious diseases.

33. **Action of Antiseptics in War Wounds.**—The research here described was done with eight of the antiseptics currently in vogue, including 1:1,000 mercuric chlorid and Dakin's hypochlorite solution. The effect on the leukocytes was estimated from the movements of the granules and the staining properties as well as from the breaking up of the cell. Illustrations are given of the aspect of the cell at different periods under the influence of the various antiseptics. The alkaline hypochlorite solutions have a prompt dissolving action, liquefying the pus, red corpuscles and blood clots in the wound. This dissolving action is the work of the sodium, and it is annulled by too much boric acid and by salt. Living tissue protects itself against this dissolving action by its salt content. Irritation of the tissues around a wound being irrigated with hypochlorite solution can be warded off by keeping them covered with a compress moistened with a 20 or 40:1,000 salt solution. Charts and tables are given to illustrate this protective action of weak salt solution, effectually protecting the cells and tissues against harm from the hypochlorite solutions. Dakin's formula ensures sufficient dissolving action while but slightly irritating normal tissues, and this irritation can be warded off with the 2 or 4 per cent. salt solution, the hypochlorite and salt just balancing each other.

35. **Firearm Wounds of the Chest.**—Maillet's 122 cases illustrate anew the paramount importance of early and prolonged immobilization in treatment of wounds of the chest. Gelatin, calcium chlorid and other measures to check hemorrhages were always supplemented by emetin which seemed to have an especially favorable influence in combating a tendency to hemoptysis. In one case artificial pneumothorax succeeded when all else had failed. These patients are particularly sensitive to getting chilled, and they develop serious congestion at the slightest exposure. Quinin was given in the cases with congestion. When the effusion could not be tapped, injection into the pleural cavity of 10 c.c. of a 5 per cent. solution of methylene blue aided in warding off suppuration.

Bulletin de l'Académie de Médecine, Paris

April 25, LXXV, No. 17, pp. 453-490

36 Pseudo-Appendicitis: Diverticulitis; Two Cases. (Sur quelques traits de l'histoire clinique du diverticule de Meckel.) E. Kirmisson.

37 The Power of Microbes to Injure Leukocytes is Index of Their Virulence. (Du mode d'action de certains antiseptiques et des procédés destines à apprécier leur valeur thérapeutique.) Maurel.

Paris Médical

April 29, VI, No. 18, pp. 409-424

38 *Recovery Under Serotherapy of Tetanus. (Sérothérapie dans le tétanos declaré et traitements combinés.) G. Etienne.

39 Colloidal Iron in Treatment of Typhoid. Le Fèvre de Arric.

40 Abdominal Wounds in War. (La chirurgie abdominale à l'avant.) R. Grégoire.

41 Localization of Projectiles in the Tissue. (Méthode radioscopique de localisation des projectiles.) R. Desplats and R. Paucot.

May 6, No. 19, pp. 425-456

42 Skin Diseases During the War. (Les dermatoses pendant la guerre.) Milian.

43 Psoriasis Brought On by Fright or Trauma. (Le psoriasis émotif et traumatique.) M. Gaucher and R. Klein.

44 Treatment of Soft Chancre. F. Balzer.

45 *Prophylaxis and Treatment of Venereal Disease Among the Troops. (La syphilis aux armées.) E. Bodin; (Traitement de l'urétrite blennorragique aux armées.) Carle; (Le 102 ou luargol.) G. Milian; (2 recettes pour faciliter le traitement antisyphilitique en campagne.) G. Blechmann.

46 Suppurating Inguinal Glands. (Adénites chancrelleuses.) H. Gougerot.

47 *Torpid Wounds That Refuse to Heal and Their Treatment. (Les plaies atones.) F. Debat.

38. **Antitetanus Serum in Treatment.**—Etienne does not share the pessimistic views of many in regard to serotherapy of tetanus, having had five patients out of six recover under systematic administration of antitetanus serum. The men all

had fever except one, and this was the one fulminating fatal case. This patient proved to be a carrier of tetanus germs as he had no symptoms until, under a course of quinin, the fulminating tetanus developed. Salette has observed similar cases and Vincent has reproduced the same in animals, quinin injections arousing latent tetanus to a rapidly fatal course. In Etienne's five other cases, all with favorable outcome, the incubation period had been three, six, seven, ten or eleven days. Tetanus, he reiterates, is primarily an infectious disease, then an intoxication, and finally a nervous affection. The first calls for treatment of the focus, the second for antitoxin treatment and the third for chloral and morphin. With serotherapy, he adds, "it does no good to shoot at a lion with birdshot," and adequate dosage is the main point.

45. **Convenient Mercurial Treatment of Syphilis.**—Blechmann says that mercury can be administered by applying a lump of mercurial ointment to the sole of the foot before pulling on the sock or stocking. The constant stepping on it forces the drug into the tissues, and absorption is so complete that he has had stomatitis follow in some cases. The mercury can also be given in the form of a cocoa-butter suppository. It may induce transient diarrhea but has no other inconvenience. Both of these methods are effectual and discreet, while they are convenient for troops on active service, or under other exceptional conditions.

47. **Torpid Wounds.**—Debat declares that the lack of exercise and the congestion from gravity amply explain the refusal of certain wounds to heal. They drag along for months until active measures are applied. No drugs are needed, merely measures to promote the circulation while warding off harm from gravity congestion. Walking with the wounded leg too soon aggravates the gravity disturbances and undoes what has been accomplished. The limb should be kept raised enough to counteract gravity, and the muscles vigorously contracted five minutes every hour, with daily massage and brief hot air douches, but no drugs.

Presse Médicale, Paris

April 27, XXIV, No. 24, pp. 185-192

48 Operative Corrections of Ankylosis of the Elbow. (La résection de l'épiphyse humérale inférieure appliquée au traitement de l'ankylose ou des lésions ankylosantes du coude. Avantages de l'incision latérale externe pour l'opération.) P. Alglave.

49 Abdominal Wounds in War. (Traitement des plaies pénétrantes de l'abdomen.) J. Abadie.

Progrès Médical, Paris

April 20, XXXII, No. 8, pp. 57-64

50 Fistulas in or Around the Orbit From Wounds in War; Twelve Cases. (Fistules orbitaires et périorbitaires.) H. Bourgeois.

51 Combined Chloroform and Ethyl Chlorid for General Anesthesia. (Du choix d'un anesthésique et d'un analgésique général en chirurgie et en obstétrique: le chloroforme chloréthylé.) J. Regnault.

May 5, No. 9, pp. 65-72

52 Training the Motor Apparatus Anew. (Les rééducations de l'appareil locomoteur.) H. Gosset.

53 *Washtubs to Stand in the Trenches. (Prophylaxie des macérations et gelures des pieds.) A. Bailliet.

53. **Prophylaxis of Trench Foot.**—Bailliet suggests for the men in the trenches to stand in wash tubs, thus keeping dry and out of the mud. Planks laid from tub to tub will serve as seats. He suggests further that the tent cloth carried by the man be buttoned around the neck and around the top of the tub, this "empire robe," as he calls it, thus keeping all rain and wet out of the tub while keeping in warmth, especially if the tub is partly filled with sawdust.

Correspondenz-Blatt für Schweizer Aerzte, Basel

April 29, XLVI, No. 18, pp. 545-576

54 Extension Treatment of Fractured Femur. (Erfahrungen über die Behandlung der Oberschenkelbrüche mit der Extension nach Bardenheuer.) C. Kaufmann.

55 Technical Points in Meat Inspection. (Die Untersuchung auf Rinderfinnen—Cysticercus bovis s. inermis—in der Fleischschau.) R. Buri.

May 6, No. 19, pp. 577-608

56 Influencing of the Pulse by the Breathing. (Die Beeinflussung des Pulses durch die Atmung.) O. Roth.

Gazzetta degli Ospedali e delle Cliniche, Milan

April 23, XXXVII, No. 33, pp. 513-528

57 *Phagocytosis During Acute Infectious Diseases. (Alcune ricerche sul comportamento del potere fagocitario nelle malattie infettive.) C. Romagnolo.

April 27, No. 34, pp. 529-544

58 Improvised Arrangements for Isolation in the War Zone. (Come si puo costituire un locale d'isolamento in Zona di Guerra.) F. Pancrazio.

April 30, No. 35, pp. 545-560

59 The Vitamins. E. Bertarelli.

60 Recovery From Severe Puerperal Fever Under Intravenous Injections of Mercuric Chlorid. (Sopra un caso di setticemia puerperale guarito con le iniezioni endovenose alla Baccelli.) A. Sofi.

57. **Phagocytosis in Acute Infections.**—Romagnolo used Stuber's technic for determining the phagocytosis, and reports the findings and all details of twenty-four cases of typhoid, meningitis or other acute infectious disease. At first phagocytosis grows less, then the defensive forces rally and it increases notably and then gradually drops back to normal. The height of the phagocytosis may correspond to the period just preceding the crisis of the disease or it may occur while the fever is at its height or not until convalescence is well under way. In one case of erysipelas, phagocytosis kept on a very high level even after defervescence and this was explained by the return of the disease, a second attack following on the heels of the first. When the phagocytic power keeps low and grows lower as the disease progresses, the outlook is grave.

Policlinico, Rome

April 16, XXIII, No. 16, pp. 485-516

61 Influence of Quality of Peptone Used in Bacteriologic Work. C. Gorini.

62 Soldier's Heart. (Il cuore dei soldati.) G. Galli.

63 Importance of Collaboration Between Surgeons and Neurologists in Treatment of the Wounded. (Per una piu giusta e piu utile collaborazione fra nevrologia e chirurgia di guerra.) L. Bobbio.

64 Gas Gangrene. (Contributo alla cura della gangrena gassosa.) T. Giovanni.

April 30, No. 18, pp. 549-580

65 Ready-Made Culture Medium for Rapid Diagnosis of Cholera. (L'uso del terreno di Aronson nella diagnosi rapida del vibrione colerigeno.) G. Volpino.

66 *Virulence of the Blood in Animals With Foot-and-Mouth Disease. (La virulenza del sangue degli animali malati di afta epizootica.) G. Cosco and A. Aguzzi.

67 *Epinephrin in Treatment of Nephritis. (Cura della nefrite con la soluzione di adrenalina nella pratica di condotta.) G. B. Borelli.

66. **Virulence of the Blood in Foot-and-Mouth Disease in Animals.**—Cosco and Aguzzi have been conducting research on an extensive scale under the auspices of the national public health service. In 116 cattle examined the blood was found virulent during the entire febrile course of the foot-and-mouth disease, as virulent as the products of the aphthous eruption. The red corpuscles and the serum are equally virulent and the defibrinated blood kept on ice retained its virulence for over a month. Red corpuscles thoroughly rinsed from all traces of serum, and the serum alone, reproduced the disease on subcutaneous injection of other cattle in a dose as small as 1 c.c. They regard the red corpuscles thus as ideally adapted for production of a vaccine, and they are now working along this line.

67. **Epinephrin in Treatment of Nephritis.**—Borelli reports two cases of acute and one of chronic nephritis in which remarkable benefit was realized by epinephrin treatment. One patient was a child nearly 5, the others men of 50 and 62. He gave the child sixteen drops a day of a 1:1,000 solution of epinephrin, four drops at four hour intervals. The adults were given forty drops a day, eight at a time. Ercolani called attention in 1910 to the benefit from epinephrin by the mouth in nephritis, commending the harmlessness, ease and efficacy of this method of treating kidney disease, which has proved its usefulness again and again, and Borelli's experience has confirmed his statements.

Brazil-Medico, Rio de Janeiro

April 8, XXX, No. 15, pp. 113-120

68 Diphtheria Bacilli Not Found Invariably in Diphtheria. (Diagnostico bacteriologico da diphteria.) E. Gomes.

69 *Syphilis of the Stomach. (Contribuição ao estudo da syphilis do estomago.) O. Clark. Concluded.

April 15, No. 16, pp. 121-128

70 Principles for Protection Against Intestinal Parasites. (Os nematoides do tubo digestivo de que modo infestam o organismo? Prophylaxia.) A. A. da Matta.

71 Severe Polyarthritis of Gonorrheal Origin in Bride. (Arthrite blennorrhagica em uma recem-nupta, sem localisação primitiva apreciavel. Arthrotomia. — Cura.) F. L. Rodriques.

69. **Syphilis of the Stomach.**—The earlier instalments of Clark's article were summarized in these columns May 20, p. 1665. He here gives the minute details of his eleven cases, tabulating them for comparison. In three cases the patients had no suspicion of their syphilis; in five the disease had been acquired eleven, fifteen, twenty-seven or thirty years before. The stomach had given trouble for three months, eight days, ten months and eighteen months in these cases. In one case severe hematemesis on three occasions was the only symptom, and mercury soon conquered this. In another case the fatal hematemesis was the first sign of anything wrong. In conclusion Clark compares his experiences with the twenty-six cases reported by Smithies in THE JOURNAL, Aug. 14, 1915, and the cases referred to by others in the discussion. Clark emphasizes the resemblance between the clinical pictures in syphilis and in cancer of the stomach in certain cases.

In Clark's latest case there was stenosis of the pylorus from a tumor with much dilatation of the stomach and positive Wassermann reaction, but he was unable to determine whether the trouble was of syphilitic or malignant origin. There was no free hydrochloric acid and the man of 55 did not present the cachexia and pallor of cancer, the absence of anemia testifying also against malignant disease. The patient was ruddy and there was no trace of metastasis although the symptoms had been noted for eighteen months. He refused to take a hospital course of treatment so the diagnosis is still dubious.

Semana Medica, Buenos Aires

No. 5, XXIII, pp. 115-142

72 *Sclerosis of Pulmonary Artery; Two Cases. (Cardiacos negros de Ayerza.) C. P. Mayer.

73 Brazilian Mosquitoes. (El Anopheles albitarsis F. Lch. A.) J. Brethes.

No. 6, pp. 143-170

74 Intravenous Treatment With Autogenous Extract of Feces. (La Coproterapia endovenosa.) M. A. Marini.

75 Mechanism of Fractures in General. F. I. Castro.

No. 7, pp. 171-198

76 Edema of the Bladder. (Edema bullosum de la vejiga.) J. N. Posadas and E. Pozzi.

77 *Will Valid Made the Day Before Death From Typhoid. (Informe medicolegal sobre el estado mental y la capacidad de testar de un enformo fallecido de fiebre putrida.) J. J. Benitez.

No. 13, pp. 347-378

78 *Is Adiposis Dolorosa Connected With Syphilis? (Contribucion al estudio de la adiposis dolorosa.) R. G. Pizarro.

79 Remuneration of the Physician. (De los honorarios medicos.) A. Stucchi.

80 Ophthalmology in North America and in the Argentine Republic. (Viajes cientificos.) Juan Santos Fernandez.

72. **Sclerosis of the Pulmonary Artery.**—The cyanosis of persons with typical sclerosis of the pulmonary artery has won for them in Argentina the name of "black cardiacs," *cardiacos negros*. Ayerza applied this term to cases of secondary sclerosis and Arrillaga has published eleven typical cases. Mayer now adds two more to the list. His patients are men of 44 and 53. The cyanosis developed two or four years ago, but for some years before that there had been repeated "colds" and chronic bronchitis with tendency to emphysema and sometimes blood in the sputum and the men's endurance was reduced. Nothing in the heart or respiratory apparatus explains this intense cyanosis. The fingers and toes show the drumstick shape of chronic pulmonary disease, especially disease of the pulmonary artery, and the fundus of the eyes shows dilation of the veins. The blood is approximately normal except for marked lymphocytosis and positive Wassermann reaction. Both patients are extremely somnolent and are subject to painful spasms in the chest, a kind of angina pectoris from angioneurotic dyspragia of the pulmonary artery, without participation of the heart. The pain spreads from the base of the heart to the depths of the lungs. The pulmonary artery is always dilated as also the right ventricle, and the second pulmonary sound is accentuated. The absence of edema with the cyanosis, the constant drowsiness, the normal temperature unless there are complications and the Roentgen findings usually readily differentiate the trouble. Cupping and digitalis were the chief reliance in treatment and gave much relief.

77. **Validity of Will Drawn During Typhoid Fever.**—Benitez devotes nearly twenty pages to the evidence on record as to whether a will signed within forty-eight hours of death from typhoid is valid in law. He discusses what is meant by typhoid fever, the mental condition of typhoid patients, and the factors which entail death. His conclusion is that in the great majority of cases the mind is normal during the day or two before death.

78. **Adiposis Dolorosa in Relation to Syphilis.**—Pizarro summarizes the history and literature of Dercum's disease, and describes a case from his practice which seems to throw light on its etiology and treatment. His patient was a woman of 52 who had menstruated early and borne a child young. The child died in two hours, and there has been no pregnancy since except one possible early abortion. At 46 the first sign of the adiposis dolorosa developed, and menstruation ceased at 48. At the age of 52 the disease, in the mixed form of adiposis, was extreme, as also the pains, but the urine was normal. On one occasion the repeated Wassermann test elicited a positive response, and on the basis of the single Wassermann reaction vigorous mercurial treatment was applied and improvement was promptly evident. The blood findings on repeated examination confirmed the clinical improvement. The masses of adipose tissue retrogressed almost entirely. The patient had no further spontaneous pains, and instead of the huge unwieldy adiposis as shown in the illustrations she is said to have become agile and capable (*agil y dispuesta*). Her weight at any time is not mentioned. She had been given ovarian treatment at first, and this was kept up with iodid after suspension of the mercurial treatment. Pizarro presents his conclusions in the form of twelve questions, asking, Is it possible that adiposis dolorosa is of syphilitic origin? Has treatment as for syphilis been tried before in this disease? If it has been tried, and no benefit resulted, could this have been owing to inadequate dosage or other defective technic? In this case were the adiposis dolorosa and the syphilis independent or not of each other? Is it not a common occurrence that syphilis aggravates dystrophies and other manifestations of defective functioning of the ductless glands?

Russkiy Vrach, Petrograd

XV, No. 10, pp. 217-240

81 Pirogoff's Report on Garibaldi's Wound. S. Y. Streich.

82 *Agglutinins in the Blood of Children After Injection of Typhoid Vaccines. (O narostanii agglutininov v krovi u typhoznikh vaktzin.) P. S. Medovikoff.

83 Care and Evacuation of Insane Soldiers on Active Service in the Southwest. (Prizrienie i evacuatzie dushevnobolnikh voinov dieistvuiushtshikh army v C. Zapadnom raionie.) N. N. Reformatsky.

No. 11, pp. 241-264

84 *Influence of the War on Neurasthenia in Soldiers on Active Service. A. V. Gerver. Commenced in No. 10.

85 *Mental Derangement Caused by the War or Due to Brain Lesions. M. S. Urstein.

86 *Diagnosis of Aneurysm of the Pulmonary Artery; Necropsy Findings in One Case. P. N. Nikolaieff.

87 *Disturbance in Vision Caused by Denatured Alcohol. (O razstroistvakh zrieniya pri otravlenii denaturvannim spirtom.) V. N. Eleonskaia.

88 Complications of Vaccination Against Typhoid. (K voprosu a posliedstviyakh protivotyphoznikh privivok.) G. A. Akhiezer.

82. **Vaccination of Children Against Typhoid.**—Medovikoff vaccinated seventeen girls from 8 to 14 years old, in order to find out whether antityphoid vaccination produces in children any reaction, and whether agglutinins form and accumulate during the period of vaccination. He used Wright's bouillon vaccine, Kolle's agar vaccine or Vincent's vaccine, each in about a third of the children. Three injections were

made, each hypodermically, below the scapula, with eight day intervals. The dose for the first injection was 0.5 c.c. per 60 kg. of body weight; for the second injection, twice and for the third, three times the amount used for the first injection. The local reaction showed the next day in the form of redness, swelling and tenderness; in some cases the axillary glands became swollen. The general reaction was insignificant, merely slight headache, some malaise, and a very slight elevation of the temperature, which was somewhat higher after Wright's vaccine. Before the first injection it was established that the serum (1:20) dilution did not agglutinate typhoid bacilli. After the vaccinations, the agglutinins began to appear by the sixth day after the first injection and kept increasing after the subsequent vaccinations. Thus any of these varieties of vaccines can be used, as with each and all of them production of agglutinins takes place. His experience also shows that in children, as well as in adults, immunity against typhoid infection can be successfully induced, and thus they can be protected against this disease in case of an epidemic.

84. **Neurasthenia in Soldiers on Active Service.**—Gerver found from repeated observation of neurasthenia in soldiers that it manifests itself in the war environment with the same clinical symptoms as in time of peace. The specific features are impulsive ideas and phobias; even the entire sphere of consciousness may suffer. The existing conditions of warfare imprint special features on the neurasthenia. The forms with agitation show during periods of hot battling, while trench warfare elicits the more torpid forms of neurasthenia. The physical symptoms also are the same as in time of peace, headache, dizziness, tinnitus and diminished hearing. Clavus, that is, an acute sharply localized pain, especially in the occipital region, is also very common, and hysteria is a frequent complication.

85. **Mental Disturbance in Soldiers.**—According to Urstein's observation, psychic disorders caused by brain trauma develop usually only when more or less extensive portions of the gray matter of the cortex are involved, though it is possible for even circumscribed lesions of the brain as, for instance, fracture of the skull, hemorrhages, etc., to affect the mind. The immediate result of brain trauma is mental confusion. The patients appear somnolent, dazed, forgetful and absentminded. In severe cases unconsciousness may last for hours and even days. Other symptoms are headache, fainting, dizziness, vomiting, slow pulse, pupil disturbances, paralysis and convulsions. The mental confusion usually shows immediately after brain trauma, but in some cases only after an interval of hours or days. In addition there are observed changes in the character; excessive sensitiveness, excitability and irritability, exhilaration, maniacal states and hypochondriac ideas. In general, the clinical picture resembles that of traumatic delirium. The symptoms of delirium become more pronounced when the course is unfavorable, which may be due to abscess formation or to a meningo-encephalitis. In such cases somnolence sets in, followed by coma, convulsions, paralysis and rise in temperature.

The most frequently observed psychosis was catatonia, next in frequency, psychopathic constitutional anomalies, epileptic insanity and finally manic-depressive states. Urstein has also encountered cases of the so-called exhaustion psychoses, hysterical psychoses and progressive paralysis of the insane. The latter was observed only in soldiers over 30 years old. There does not seem to be any specific psychoses, according to Urstein. He claims that a psychosis develops only when there was a certain predisposition. That is, the elements of the psychosis were present before the man went to war; the latter but hastened its development. In general the so-called war psychoses do not differ from those in time of peace though the clinical symptoms may be somewhat peculiar depending on the character of the warfare.

86. **Aneurysm of Pulmonary Artery.**—In 271 cases of so-called internal aneurysms, Nikolaieff found aortic aneurysm in 86.3 per cent. of the cases, while the pulmonary artery was involved in only two cases, that is, in 0.7 per cent. He reports in detail a case of aneurysm of the pulmonary artery in which the diagnosis was confirmed by necropsy. The main symptoms were dyspnea, repeated and abundant hemoptysis which yielded to rest, and a marked systolic murmur heard at the back, especially in the interscapular space at the base of the lungs. The auscultation phenomena at the base of the heart were changeable; sometimes systolic, sometimes diastolic murmurs were heard, and they were very inconstant appearing only during disturbed compensation in the lesser blood circle. Necropsy revealed some narrowing of the aortic orifice, and considerable dilatation of the branches of the pulmonary artery. The diameter of the left branch was 2.5 cm. The right and left ventricle were considerably hypertrophied, the cavities not much dilated. Another feature of the case was the protracted course—six and a half years—and it might have been longer if the patient had not succumbed to intercurrent pneumonia. The Wassermann test was negative; Roentgen examination gave indefinite results.

87. **Poisoning from Denatured Alcohol.**—Eleonskaia comments on the extreme frequency of poisoning from denatured alcohol in the Petrograd hospitals soon after the sale of liquors was forbidden. From 123 to 332 persons per month were treated in one hospital, while in another during the six months, 1,292 cases were admitted. As denatured alcohol contains about 1 per cent. of wood alcohol which affects the vision, causing amblyopia, the latter was a very common occurrence in cases of denatured alcohol poisoning. Of 1,432 men treated during 1915 for poisoning from denatured alcohol, 6 per cent. suffered from amblyopia. Half of this number drank denatured alcohol only, while others used in addition cologne water and furniture polish. It required three or four months for the onset of visual disorders, and this occurred usually only after large quantities of alcohol had been imbibed. The main symptoms were decline in visual acuity, especially of central vision, and disturbances in color sense, especially for red and green. Occasionally central scotoma for all colors was observed, including white. Narrowing of the field of vision was observed in 15 out of 40 cases examined, and the fundus was found changed in 61 out of 96 cases (hyperemia of the papilla, blurred outline, pallor of the temporal half of disk, etc.) The pupils were usually normal. Abstinence from further use of denatured alcohol brought in many cases improvement of vision, but very slowly and imperfectly. In general, the visual disorders caused by the use of denatured alcohol are milder than those brought on by pure wood alcohol, but they are more severe than those from plain alcohol.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

April 1, 1, No. 14, pp. 1145-1228

89 *Spasmophilia in Children Over Three. (Spasmophilie bij het oudere kind.) H. A. Stheeman.

90 Means to Maintain the Normal Body Temperature in Decerebrated or Decapitated Animals. (Twee methoden om de lichaamstemperatuur van gedecerebreerde of gedecapiteerde dieren langen tijd standvastig te houden.) W. S. Van Leeuwen.

91 No Benefit Apparent From Thyroid Treatment in Twenty-Two Cases of Dementia Praecox. (Mededeelingen over proeven van behandeling der dementia praecox met schildklierpraeparaten.) J. G. Schnitzler.

92 End-to-End Suturing of Vena Cava at Nephrectomy. (Een geval van circulaire vena cava-hechting bij nephrectomie.) J. W. Van Bisselick.

April 8, No. 15, pp. 1229-1312

93 *The Declining Birth Rate and Measures for Infant Welfare. (Geboorteachteruitgang en zuigelingenbescherming.) H. W. Methorst.

94 Influence of the Diet on the Response to the Cammidge Test. (Over den invloed van de voeding op den uitslag van de reactie van Cammidge.) C. J. C. Van Hoogenhuyze and S. Nagasaki.

95 Localization of Peripheral Facial Paralysis. (Bijdrage tot de localisatie van perifere facialis-verlammingen.) J. G. Drossaers.

89. **Spasmophilia in Children.**—Stheeman found in examining 100 children that the Chvostek and Erb signs were both positive in 32, the latter alone in 14 and the former alone in 17. Thus in 100 children, selected at random, 46 per cent. presented the Erb phenomenon—which is regarded as pathognomonic of spasmophilia—and 63 per cent. presented this or the Chvostek. Only 4 of the children had actual tetany. The larger proportion reacting, and the more pronounced reactions were in children between 7 and 12. His record

thus testifies to an unsuspected prevalence of a tendency to abnormal spasmophilic nervous conditions in older children. Children inclined to asthenia seem most predisposed to it. Chronic digestive disturbances and neuropathies also afford a predisposition. An unstable vasomotor system, excitability of the abdominal vagus or sympathetic system, and the facialis phenomenon suggest spasmophilia, and electric tests confirm the diagnosis. Treatment should be instituted without delay to correct whatever is wrong; with digestive disturbances, keeping the child in bed for a time with individualized dietetic treatment. With nervous loss of appetite or nervous vomiting, a change to another environment is indicated. Outdoor life is of paramount importance when the general condition permits, that is, when there is no serious intestinal disturbance. In all cases phosphorus-cod liver oil will be found of decided benefit.

A number of cases are reported in detail to illustrate the variety of clinical pictures that may be induced by the spasmophilic tendency, from spasmodic stenosis of the bowel, rotatory tic and petit mal, palpitations, gastric achylia, enuresis, hyperchlorhydria and spastic anemia to choreiform movements and the so-called umbilical colic. All of these yielded to the treatment outlined above. The spasmophilia of the vegetative nervous system, vagotonic spasmophilia, may cause severe and recurring abdominal pains. One girl of 10 was long treated for tuberculous peritonitis on account of a tumor palpated in the abdomen. The spastic constipation and Erb reaction, with the favorable action of belladonna and castor oil, finally cleared up the diagnosis as spasmophilic vagotony, and a complete cure followed systematic phosphorus treatment. Another typical instance is that of a boy of 10 with recurring attacks of vomiting, with fever, and severe pain at times, beginning to the left of the epigastrium and spreading through it, lasting for an hour or two. The sympathetic plexus was tender and the pillow was wet with saliva at night. Under phosphorus-cod liver oil and belladonna the pains subsided and have never returned, and the bowel function is regular. By the end of two weeks the previously lively Erb reaction had also vanished and the child seemed bright and well.

93. **The Birth and Death Rate in the Netherlands.**—Methorst gives a number of charts comparing the birth and death rates in the Netherlands with that in other countries through the five-year periods since 1840. Other charts and maps show the death rate by months, the various causes of infant mortality by districts, etc. In the Netherlands before 1898 the infant mortality in the cities was higher than in the small towns, but since then the proportions have been reversed. In 1911, the cities with over 100,000 inhabitants had an infant mortality of 9.88 per 100 born living, and by 1914 this had been reduced to 6.88. In the towns with less than 5,000 inhabitants the figures were respectively 15.81 and 10.60. The statistics cited from twenty-five countries place the Netherlands eighteenth on the list of high infant mortality, Russia heading the list with 25.8 mortality among 100 infants born living; Hungary and Spain, 18.4; Prussia and Japan, 15.9; Italy and Belgium, 14.1; France, 12.6; England, 11.7; Switzerland, 11.5; Netherlands, 11.4; Australia, 7.8; Norway and New Zealand, 7. The Netherlands stands twentieth in the figures for the general mortality. In the Roman Catholic families of the Netherlands 287 births are credited to each 1,000 married women under 50; in the Protestant families 219; in the Jewish, 157, and in other families 88. These figures are for 1909-1910. The infant mortality classified in this same way for about the same period shows that of 100 children born living in Roman Catholic families, 13.6 died within the first year; in the Protestant families, 9.5, and in the Jewish, 7.5. The general birth rate per 1,000 inhabitants was in 1840 about 34, and had dropped to 28 in 1914. The Netherlands thus stands fourteenth on the list of the twenty-five countries cited with high birth rate.

Hospitalstidende, Copenhagen

April 12, LIX, No. 15, pp. 329-368

96 Ionic Copper Medication in Abortive Treatment of Gonorrhea. (Resultaterne af min Abortivbehandling — Kobber-Jontoforese — ved Gonorré.) O. Jersild.

April 26, No. 17, pp. 393-416

97 Localized Traumatic Lesions of the Frontal Lobes. (Lokaliserede traumatiske Hjærnelæsioner.) A. Wimmer. Commenced in No. 16.

Ugeskrift for Læger, Copenhagen

April 20, LXXVIII, No. 16, pp. 585-630

98 *Congenital Talipes Valgus. (Om medfødt Pes valgus og calcaneovalgus.) H. C. Slomann.

99 The Extracardial Circulation. (Nyere Undersøgelser over Arteriernes Evne til at kunne befordre Blodstrømmen.) H. I. Bing.

98. **Congenital Talipes Valgus.**—Slomann comments on the scanty literature on this type of congenital clubfoot, declaring that congenital flatfoot is one of the most frequent congenital deformities, far more frequent than talipes varus, which the textbooks say is the most common form of clubfoot. At the same time the congenital flatfoot is of essential clinical importance. It is a deformity which calls for treatment and responds readily to it. He gives illustrations of two typical cases and the clinical details of these and three others out of his fifteen cases in infants in the last three years. During this period he has encountered 104 young children born with deformities, congenital dislocation of the hip joint in eighteen and only seven new cases of clubfoot. The latter was bilateral in all, but most pronounced on one side. Only one of the children had been born with breech presentation. One of the mothers also had congenital flatfoot. The deformity may correct itself in a few months from the exercising of the muscles when these alone are responsible for it. But when the bony framework of the foot is abnormal, spontaneous correction is out of the question. In any event, unless correction is complete before the child starts to walk, the deformity is fastened for life when the weight of the body is borne regularly on the foot. An instructive case of the kind is that of a girl of 13 born with left talipes calcaneovalgus which had apparently corrected itself and there seemed to be nothing abnormal about the feet. At the age of 12, however, the use of the left foot caused much pain, the findings and disturbances characteristic of tender and painful flatfoot.

In treatment of congenital flatfoot, the simplest means to correct the contracture are the best; operative means are unneeded and irrational when it is merely a question of shortening the overstretched muscles. They regain their elasticity when given a chance to contract. He has always been successful in correcting contracture of this kind by patient and cautious stretching of the muscles under general anesthesia—the muscles involved are small ones and the forepart of the foot affords a firm hold. He says that Stern found it necessary to do tenotomy in nine of his twenty-three cases, and possibly the deformity was so extreme that the knife may have been indispensable. But bloodless stretching should at least be given a trial in every case before resorting to the knife. Everything favors beginning the treatment early, so that the correction will be complete before the child starts to walk. The use of the foot with talipes varus aids in the correction but with talipes valgus it undoes what has been accomplished, unless correction is absolutely complete. The severer the deformity, the earlier treatment should be begun, but it is seldom necessary to begin before the child is 8 or 9 months old. During the preceding months daily manipulations of the foot along the lines of correction may accomplish alone the desired result, and will facilitate it in any event. General anesthesia is usually necessary for the complete correction. Several sittings may be required at eight or ten days intervals, the foot and leg in slight overcorrection in a plaster cast. This fixation is kept up for from three to six weeks and then a small leather correcting appliance is worn, removed every day to permit massage of the plantar muscles and of the leg and bathing. When this is discarded a flatfoot shoe is worn, and at night the overcorrecting bandage. This not only holds the skeleton in the corrected position but relaxes the weak and stretches the overstrong muscles. Any tendency to permanent overcorrection is soon overcome by the use of the foot. These measures must be kept up until the naked foot keeps the normal shape unmodified by excessive weight bearing. As a rule several years are required for this. But only by this means will they be saved from flatfoot distress in later life.